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The Art of Entertainment

PION-03511

Service Manual

ORDER NO.
ARP2307

FM/AM DIGITAL SYNTHESIZER TUNER

F-550RDS

HE,HB,HEWZI

- **Refer to the service manual ARP2242, F – 676/HEWZ type.**
- **This manual is applicable to the F – 550RDS/HE, HB and HEWZI types.**

CONTENTS

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DX JULY 1991]

1. CONTRAST OF MISCELLANEOUS PARTS

NOTES:

- *Part without part number cannot be supplied.*
- *The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.*
- *Parts marked by "◉" are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.*

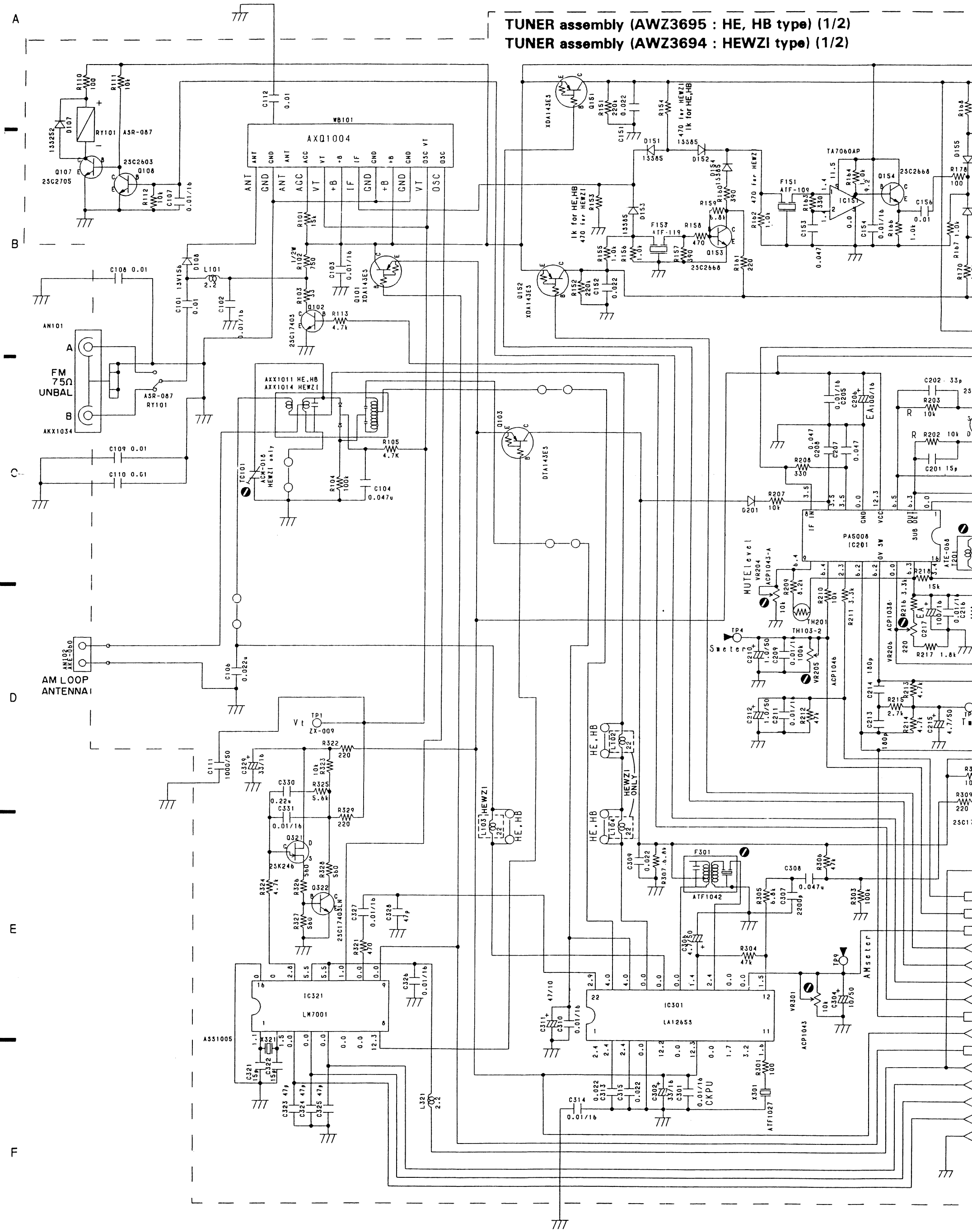
The F – 550RDS/HE, HB and HEWZI types are the same as the F – 676/HEWZ type with the exception of the following sections.

Mark	Symbol & Description	Part No.				Remarks
		F–676/ HEWZ type	F–550RDS/ HE type	F–550RDS/ HB type	F–550RDS/ HEWZI type	
◉	TUNER assembly	AWZ3635	AWZ3695	AWZ3695	AWZ3694	
◉	POWER assembly	AWZ3639	AWZ3697	AWZ3697	AWZ3696	
	DISPLAY assembly	AWP1034	AWP1038	AWP1038	AWP1038	
⚠	AC Power cord	ADG1010	ADG1021	ADG1085	ADG1021	
	Front panel	ANB1449	ANB1481	ANB1481	ANB1481	
	Panel base	AMB1815	AMB1841	AMB1841	AMB1841	
	Screw (EARTH)	ABA1047	.....	.....	ABA1047	
	Packing case	AHD2053	AHD2106	AHD2106	AHD2106	
	Operating instructions (German, Italian)	ARC1263	.....	.....	ARC1283	
	Operating instructions (English, French, German, Italian, Dutch, Swedish, Spanish, Portugues)	.....	ARE1205	.....	.....	
	Operating instructions (English)	.....	.....	ARB1326	.....	
	Connection cord with mini plug	.....	ADE–085	ADE–085	ADE–085	

2. SCHEMATIC AND P.C.BOARDS CONNECTION DIAGRAM

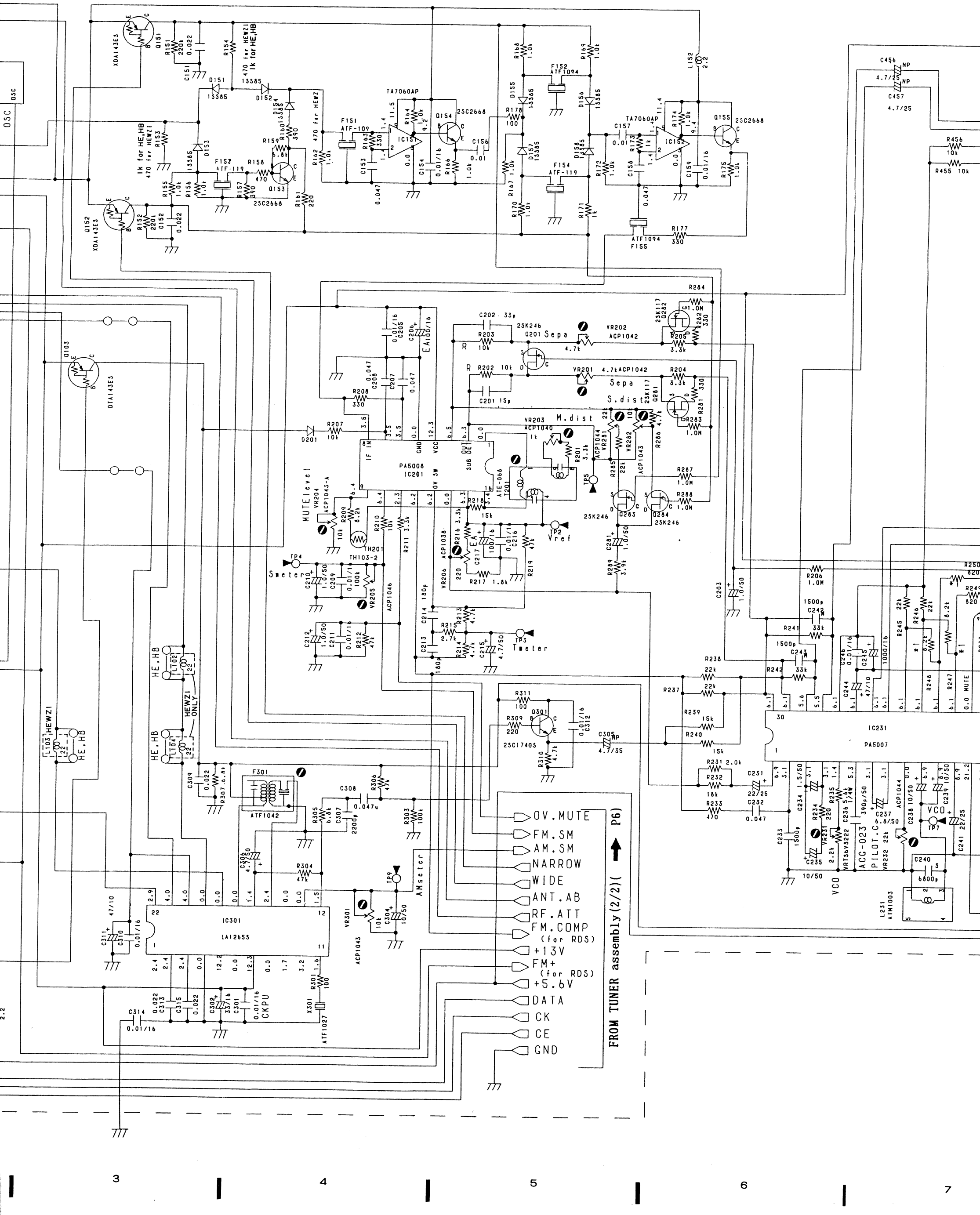
2.1 SCHEMATIC DIAGRAM OF TUNER ASSEMBLY (1/2)

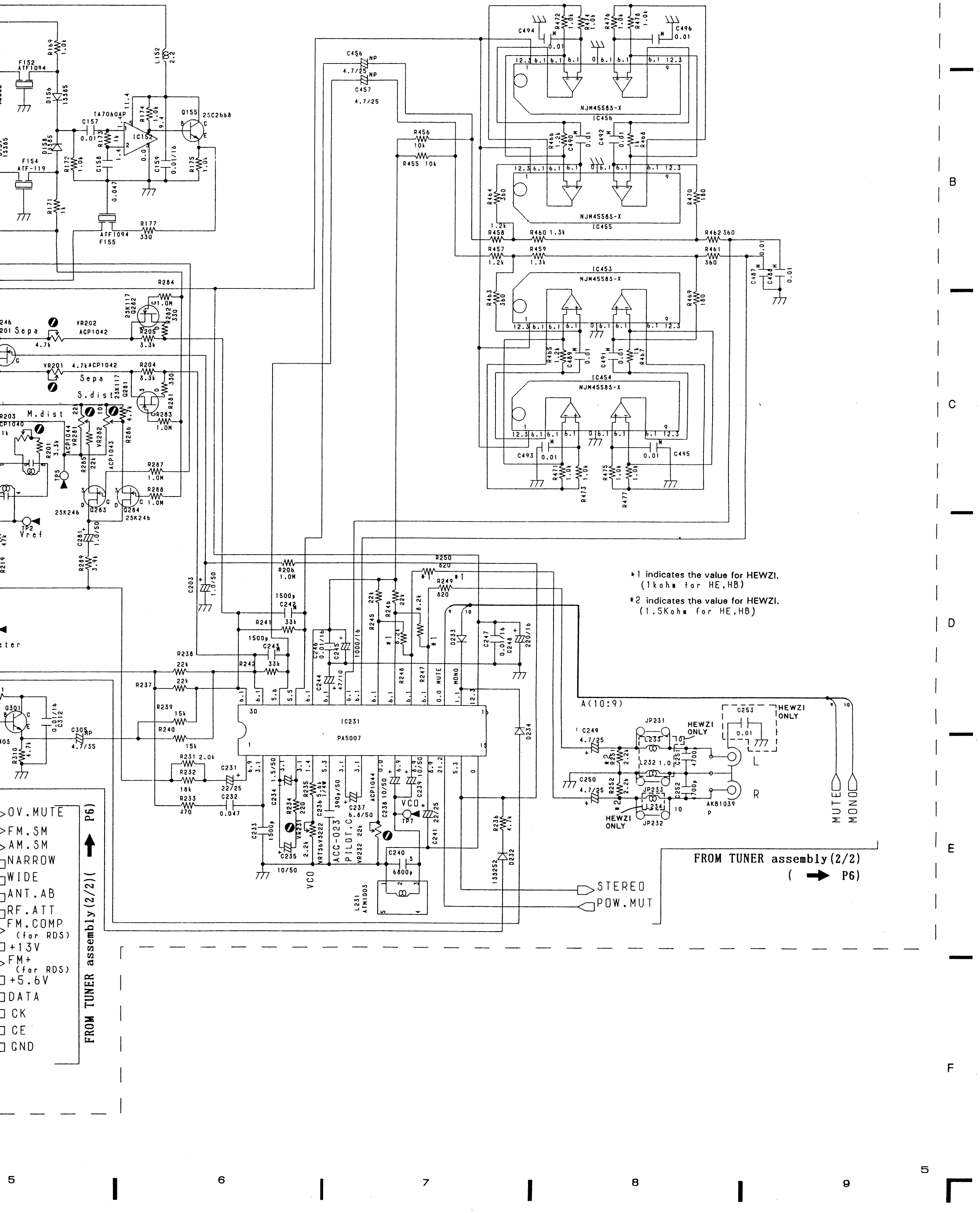
TUNER assembly (AWZ3695 : HE, HB type) (1/2)
TUNER assembly (AWZ3694 : HEWZI type) (1/2)



CTION DIAGRAM

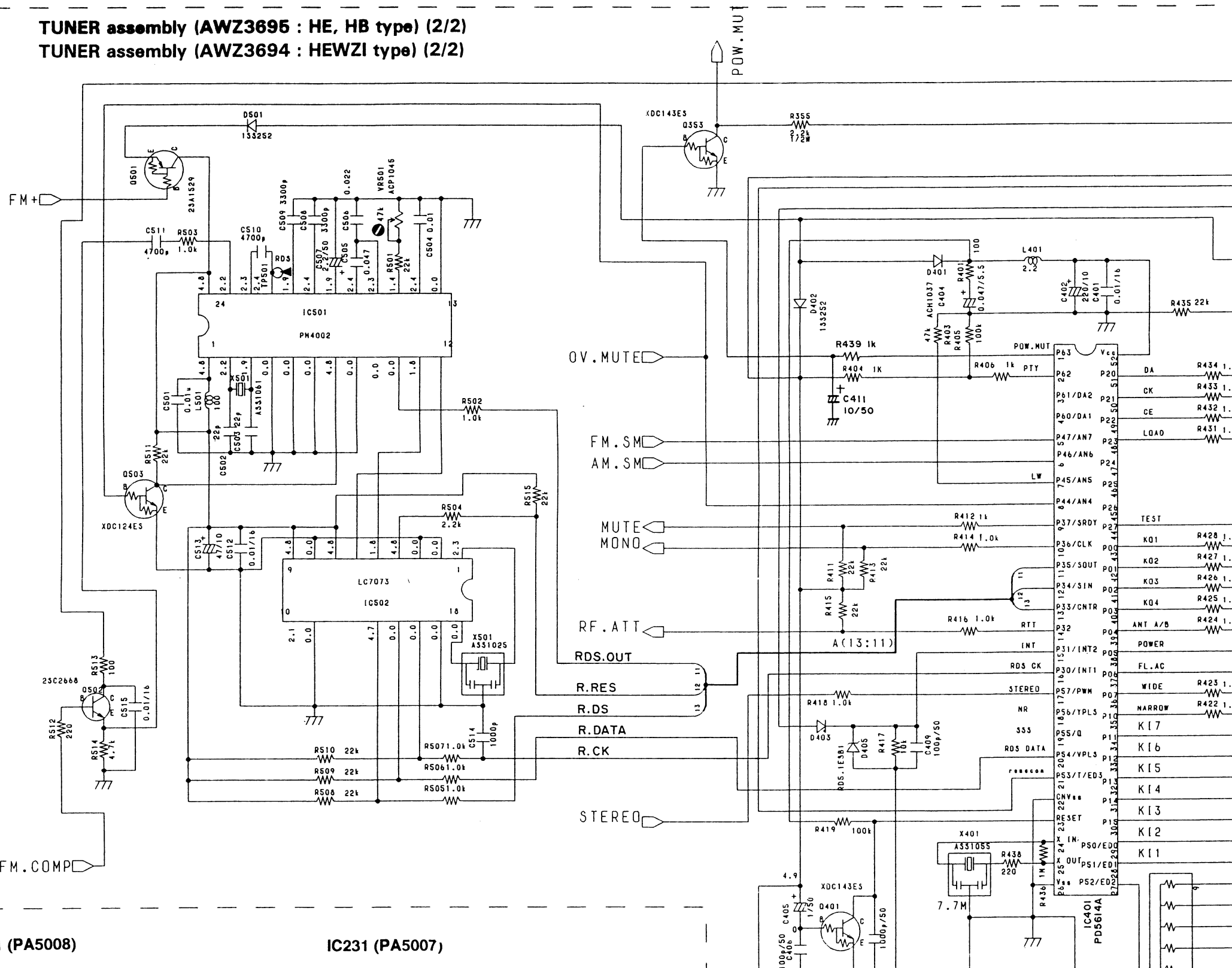
TUNER assembly (AWZ3695 : HE, HB type) (1/2)
TUNER assembly (AWZ3694 : HEWZI type) (1/2)



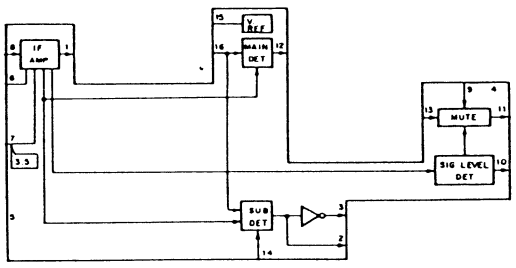

C494 0.01
C496 0.01
R472 1.0k
R474 1.0k
R476 1.0k
R478 1.0k
NJM4558S-X
IC456
IC455
IC453
IC454
C456 NP
4.7/25 NP
C457 4.7/25
R456 10k
R455 10k
R464 360
R470 180
R458 1.2k
R460 1.3k
R462 360
R457 1.2k
R459 1.3k
R461 360
R463 360
R469 180
R465 1.2k
C489 0.01
C491 0.01
R467 1k
C493 0.01
C495 0.01
R471 1.0k
R473 1.0k
R475 1.0k
R477 1.0k
C487 0.01
C488 0.01
C492 0.01
C490 0.01
R466 1.2k
R468 1k
F152 ATF1094
F154 ATF-119
F155 ATF1094
D156 1S385
D158 1S385
L152 2.2
R169 1.0k
R172 1.0k
R171 1k
R177 330
TA7060AP
IC157
C157 0.01
R173 1k
R174 1.0k
C158 0.047
C159 0.01/16
R175 1.0k
Q155 2SC2668
R284
VR202 ACP1042
R205 3.3k
R282 330
Q282 2SK117
VR201 4.7k ACP1042
R204 3.3k
R281 330
Q281 2SK117
S.dist
M.dist
R203 CP1040
R201 3.3k
ACP1044 VR281
VR282
R285 22k
R286 4.7k
ACP1043
R283 1.0M
R287 1.0M
R288 1.0M
Q283 2SK246
Q284 2SK246
TP5
TP2 Vref
C281 1.0/50
R289 3.9k
R206 1.0M
C203 1.0/50
1500p C242
R241 33k
1500p C243
R242 33k
R238 22k
R237 22k
R239 15k
R240 15k
C305 4.7/35
R231 2.0k
R232 16k
R233 470
C231 22/25
C232 0.047
R310 4.7k
0301
C312 0.01/16
R250 820
R249 *1 820
R245 22k
R246 22k
6.2k
D233
C247 0.01/16
C248 220/16
C246 0.01/16
C245 1000/16
C244 47/10
R248
R247
0.0 MUTE
1.1 MONO
IC231
PA5007
C234 1.5/50
R234 220
R235 1.4
C236 5.1k 1/4W
C237 390p/50
C238 10/50
C239 10/50
VR231 2.2k
VR232 22k
VRT36V3222
ACC-023
PILOT.C
ACP1044
VCO
TP7
C240 6800p
C241 22/25
C235 10/50
L231 ATM1003
R236 4.7k
D232 1S3252
D234
*1 indicates the value for HEWZI. (1kohm for HE,HB)
*2 indicates the value for HEWZI. (1.5Kohm for HE,HB)
A(10:9)
JP231
HEWZI ONLY
C249 4.7/25
L233
L232 1.0
C251 4700
R251 *2 2.2k
C253 0.01
L
C250 4.7/25
R252 *2 2.2k
JP233
L234
C252 1700p
AKB1039
P
R
JP232
HEWZI ONLY
MUTE
MONO
STEREO
POW.MUT
FROM TUNER assembly(2/2) (→ P6)
OV.MUTE
FM.SM
AM.SM
NARROW
WIDE
ANT.AB
RF.ATT
FM.COMP (for RDS)
+13V
FM+ (for RDS)
+5.6V
DATA
CK
CE
GND
FROM TUNER assembly(2/2)(→ P6)

2.2 SCHEMATIC DIAGRAM OF TUNER ASSEMBLY (2/2) and POWER ASSEMBLY (AWZ3697)

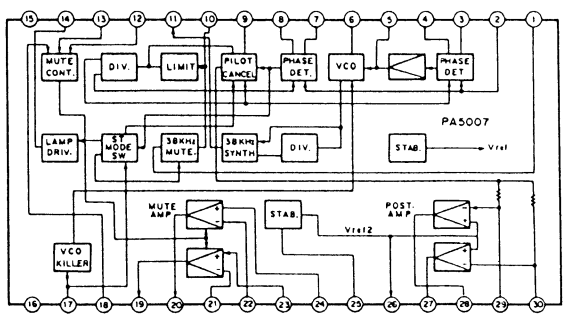
TUNER assembly (AWZ3695 : HE, HB type) (2/2)
TUNER assembly (AWZ3694 : HEWZI type) (2/2)



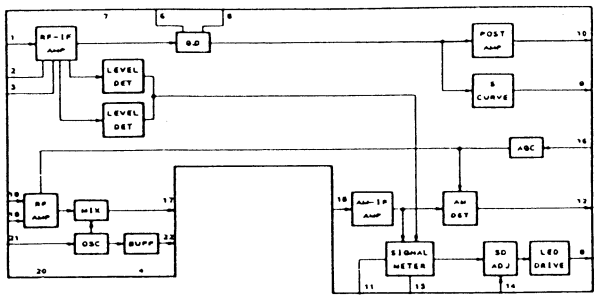
IC201 (PA5008)



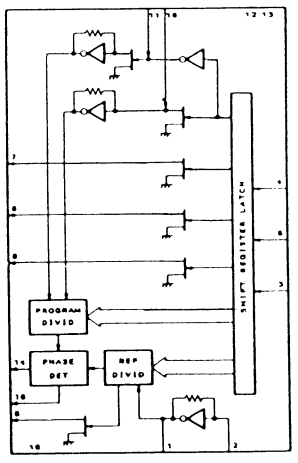
IC231 (PA5007)



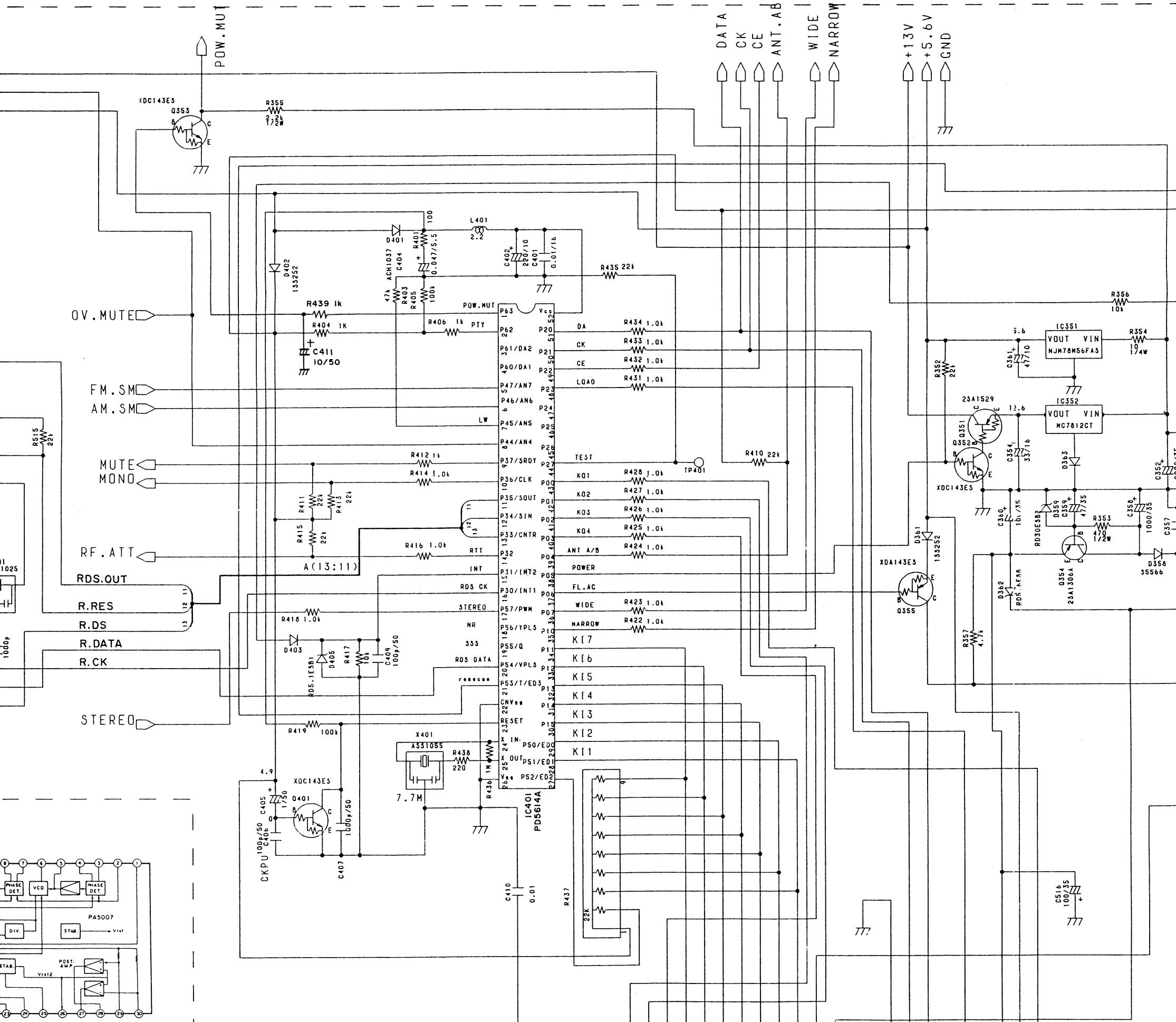
IC301 (LA1265S)



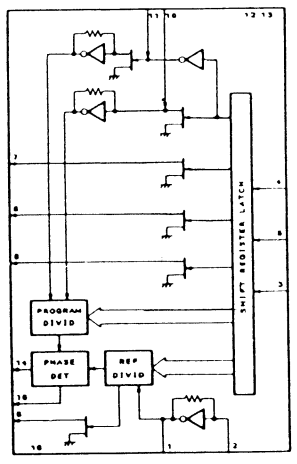
IC321 (LM7001)

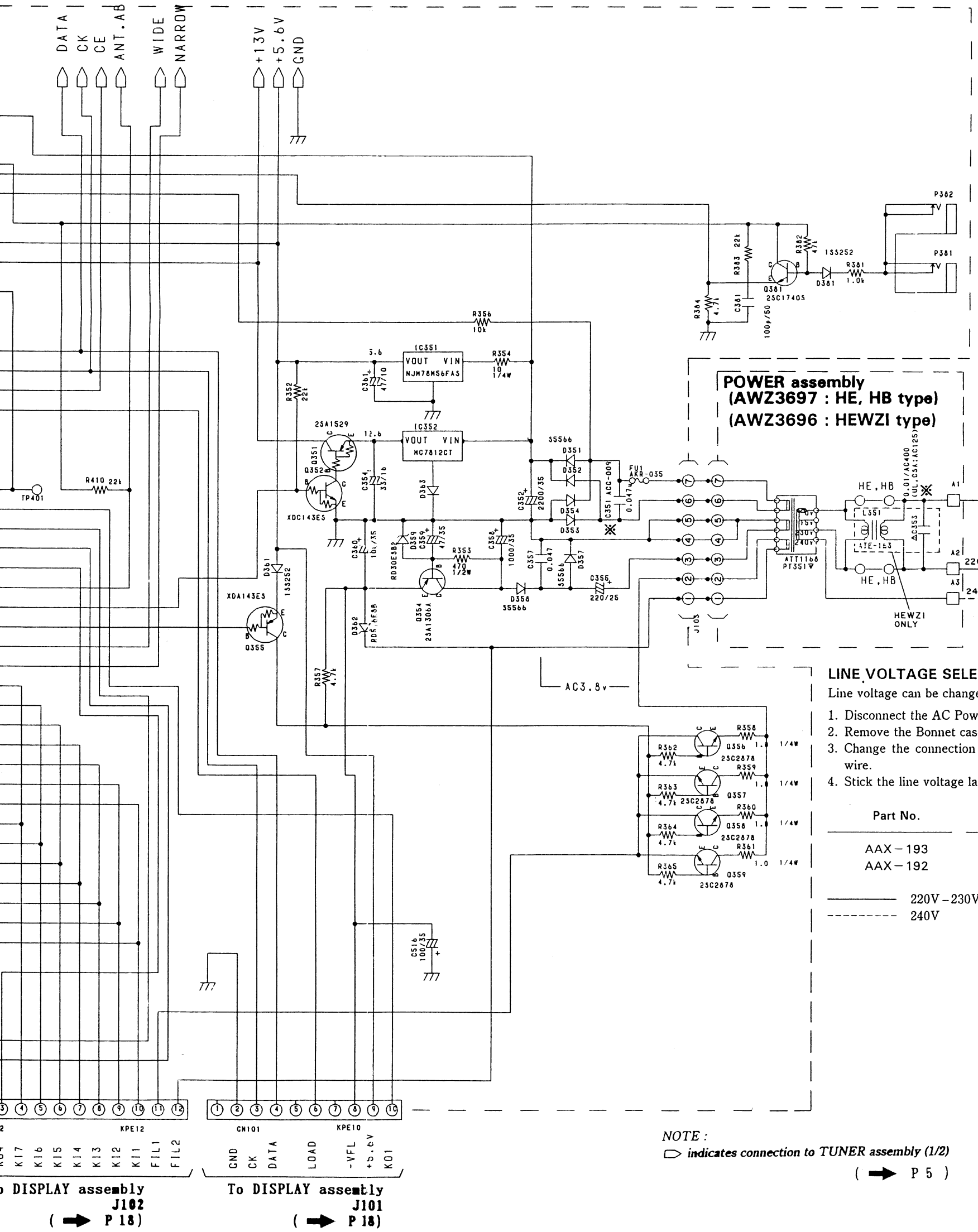


d



IC321 (LM7001)





LINE VOLTAGE SELECTION

Line voltage can be changed with the following steps.

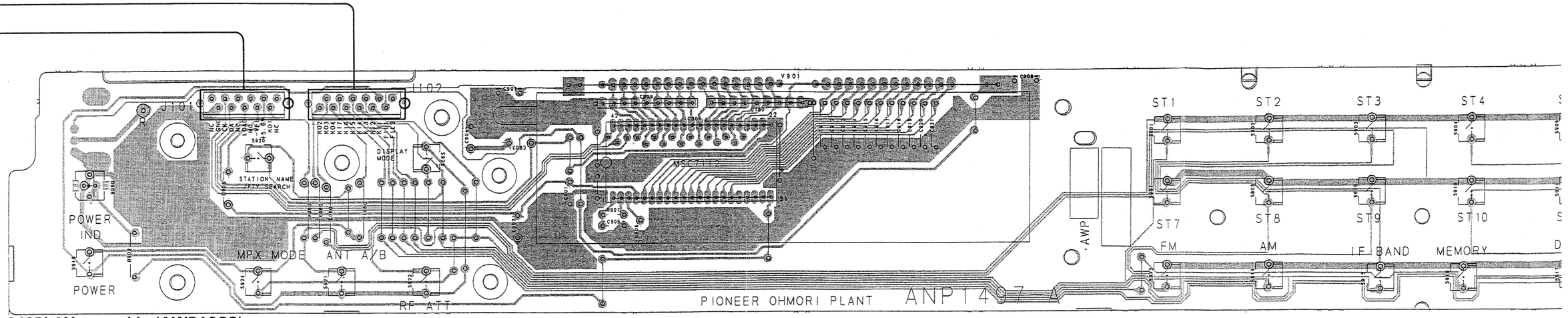
1. Disconnect the AC Power cord.
2. Remove the Bonnet case.
3. Change the connection of the power transformer lead wire.
4. Stick the line voltage label on the rear panel.

Part No.	Description
AAX−193	220V label
AAX−192	240V label

——— 220V−230V
- - - - - - - - - 240V

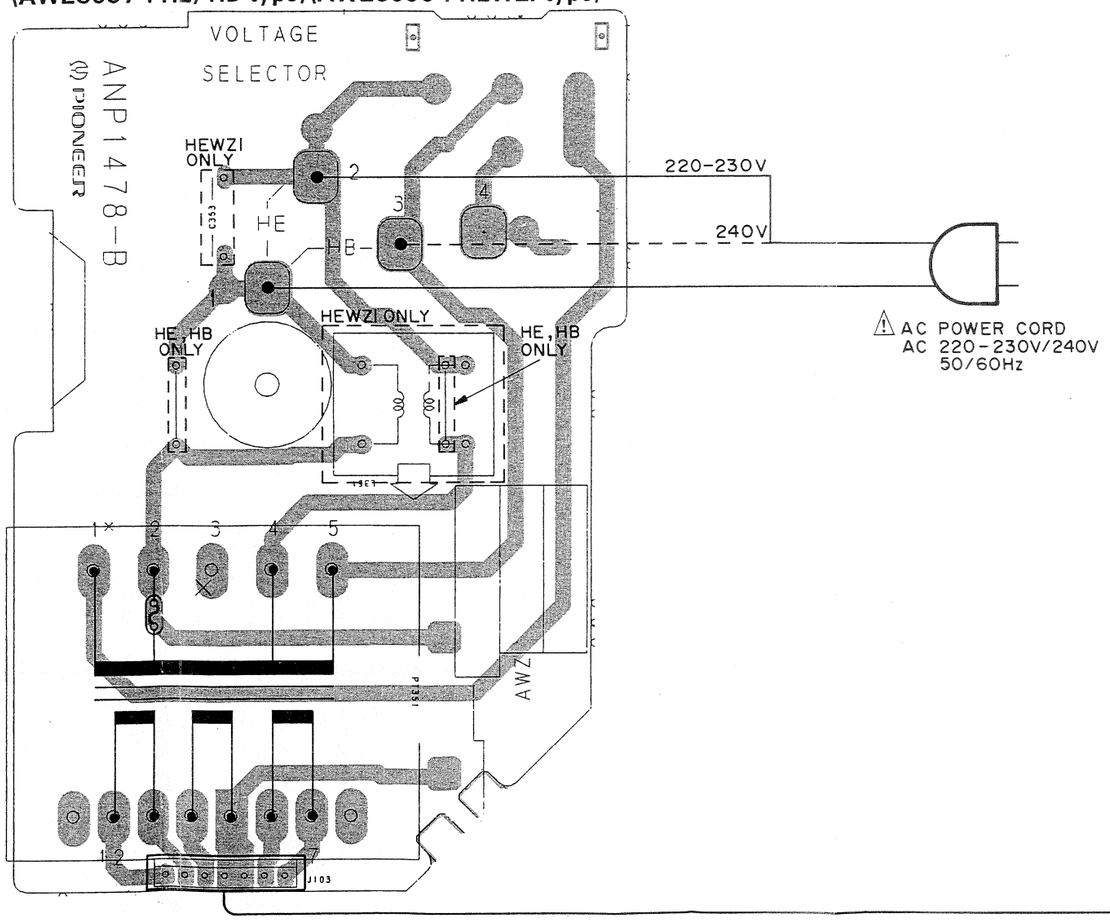
NOTE :
⬭ *indicates connection to TUNER assembly (1/2)*
(➡ P 5)

2.3 PCB CONNECTION DIAGRAMS



DISPLAY assembly (AWP1038)

POWER assembly
(AWZ3697 : HE, HB type) (AWZ3696 : HEWZI type)



NOTE

1. This P.C.B connection diagram is viewed from the parts mounted side.
2. The parts which have been mounted on the board can be replaced with those shown with the corresponding wiring symbols listed in the following Table.

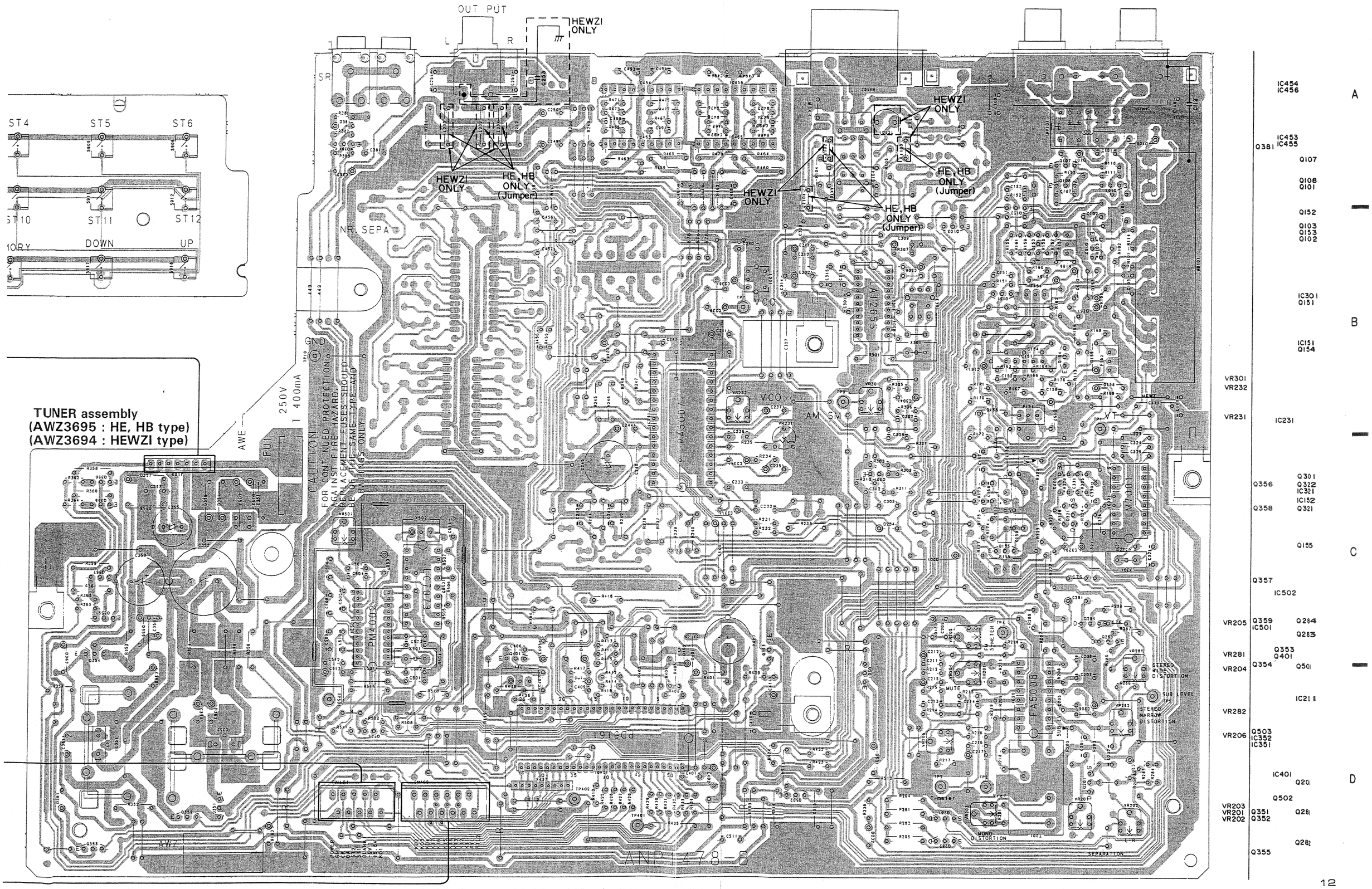
P.C.B. pattern diagram indication	Corresponding part symbol	Part Name
Q504 E C B	E C or E C B	Transistor
Q215	or	Radiator type transistor
D203	D203	Diode
R237	R237	Resistor
C513	+	Capacitor (Polarity)
C518		Capacitor (Non-polarity)

Others

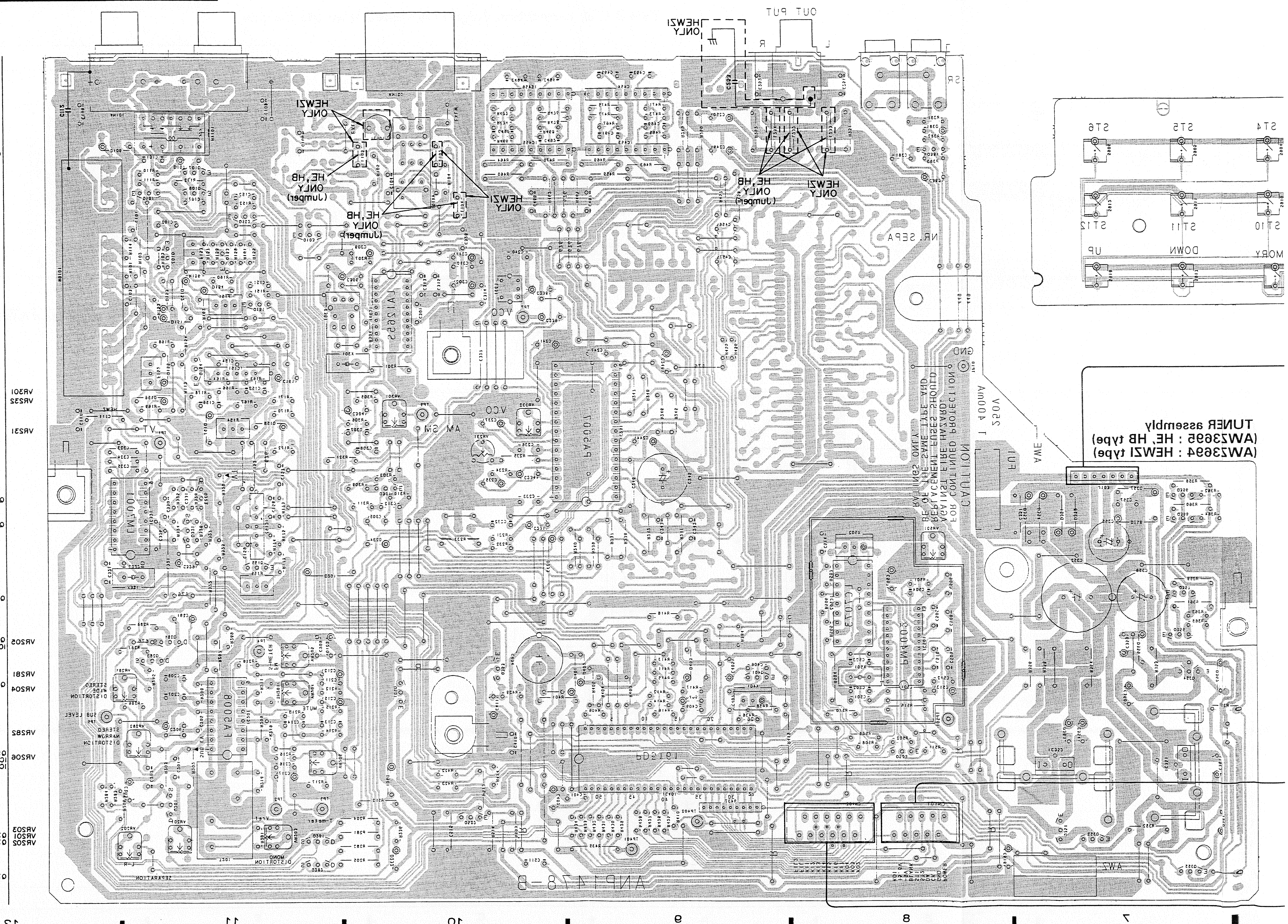
P.C.B. pattern diagram indication	Part Name
IC	IC
S	Switch
RY	Relay
L	Coil
F	Filter
VR	Variable resistor or Semi-fixed resistor

3. The capactor terminal marked with ◎ (double circles) shows negatine termianl.
4. The diode terminal marked with ◎ (double circles) shows cathode side.
5. The transistor terminal to which E is affixed shows the emitter.

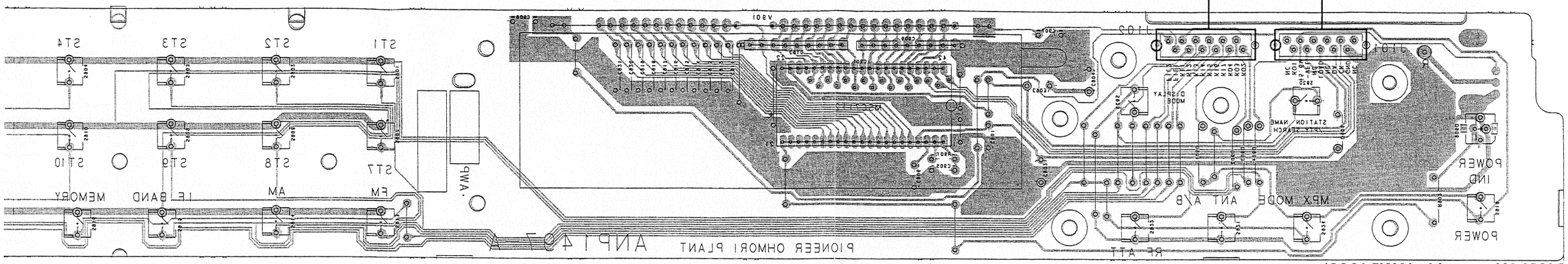
TUNER as
(AWZ369!
(AWZ369-



PION-03511 / Druck 2

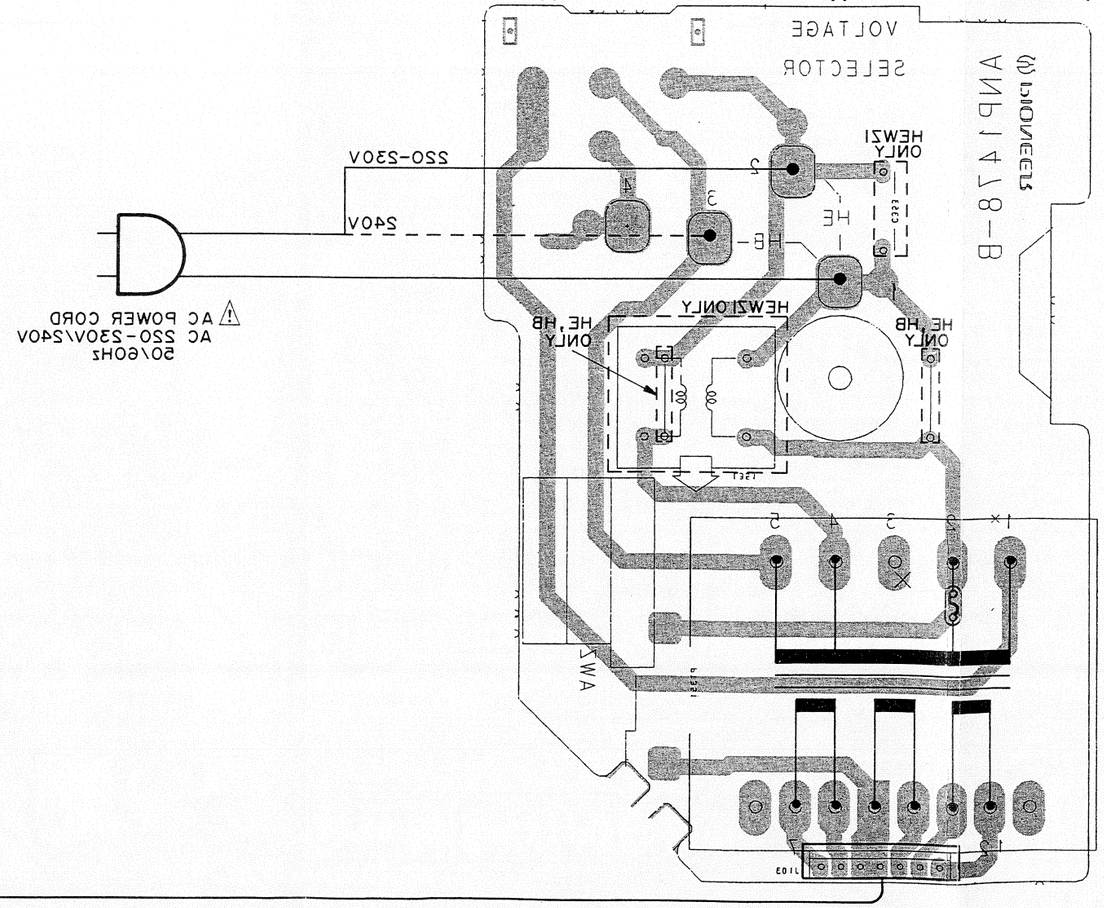

OUT PUT
HEWZI ONLY
HE, HB ONLY (Jumper)
TUNER assembly
(AW3695 : HE, HB type)
(AW3694 : HEWZI type)
ANP1478-B

This P.C.B. connection diagram is viewed from the foil side.



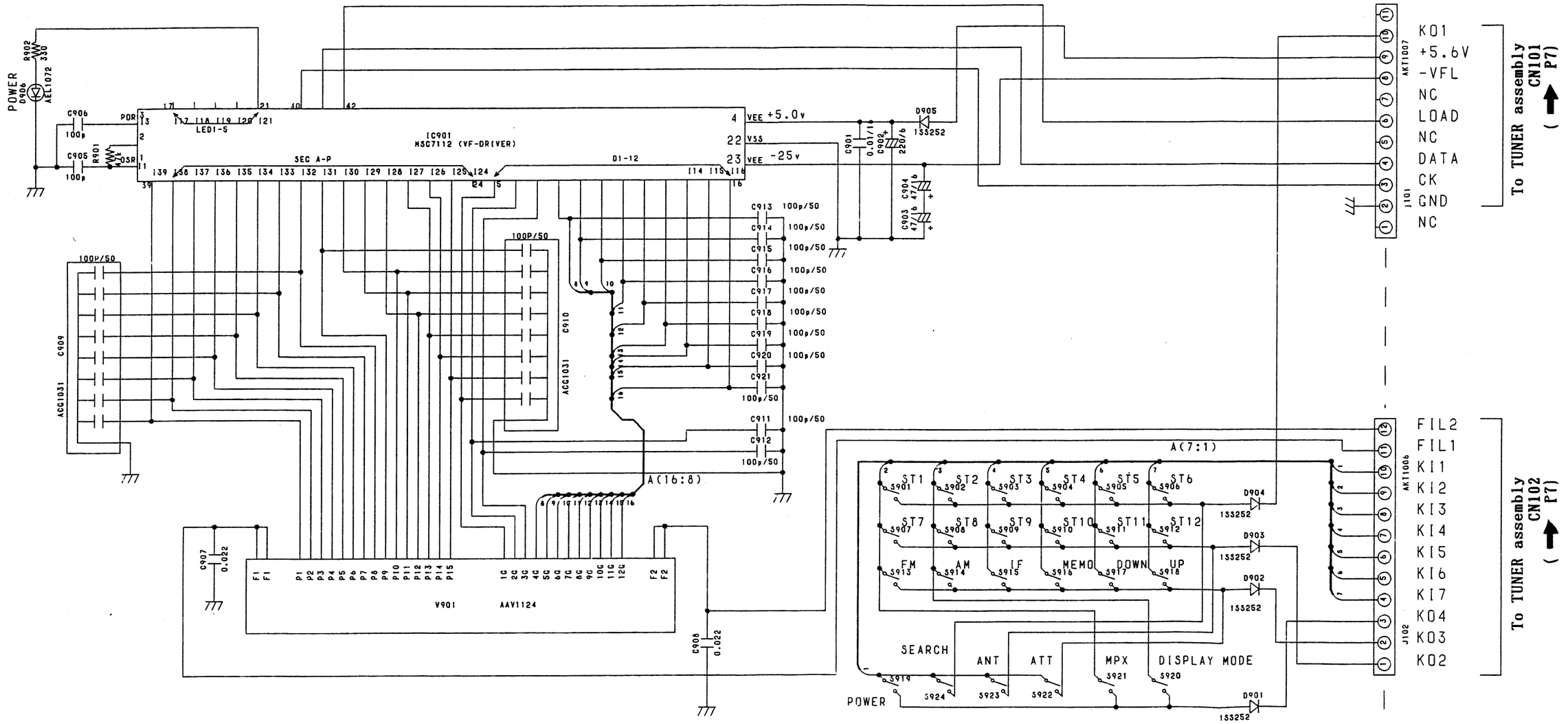
DISPLAY assembly (AWP1038)

POWER assembly
(AWZ3697 : HE, HB type)(AWZ3696 : HEWZI type)

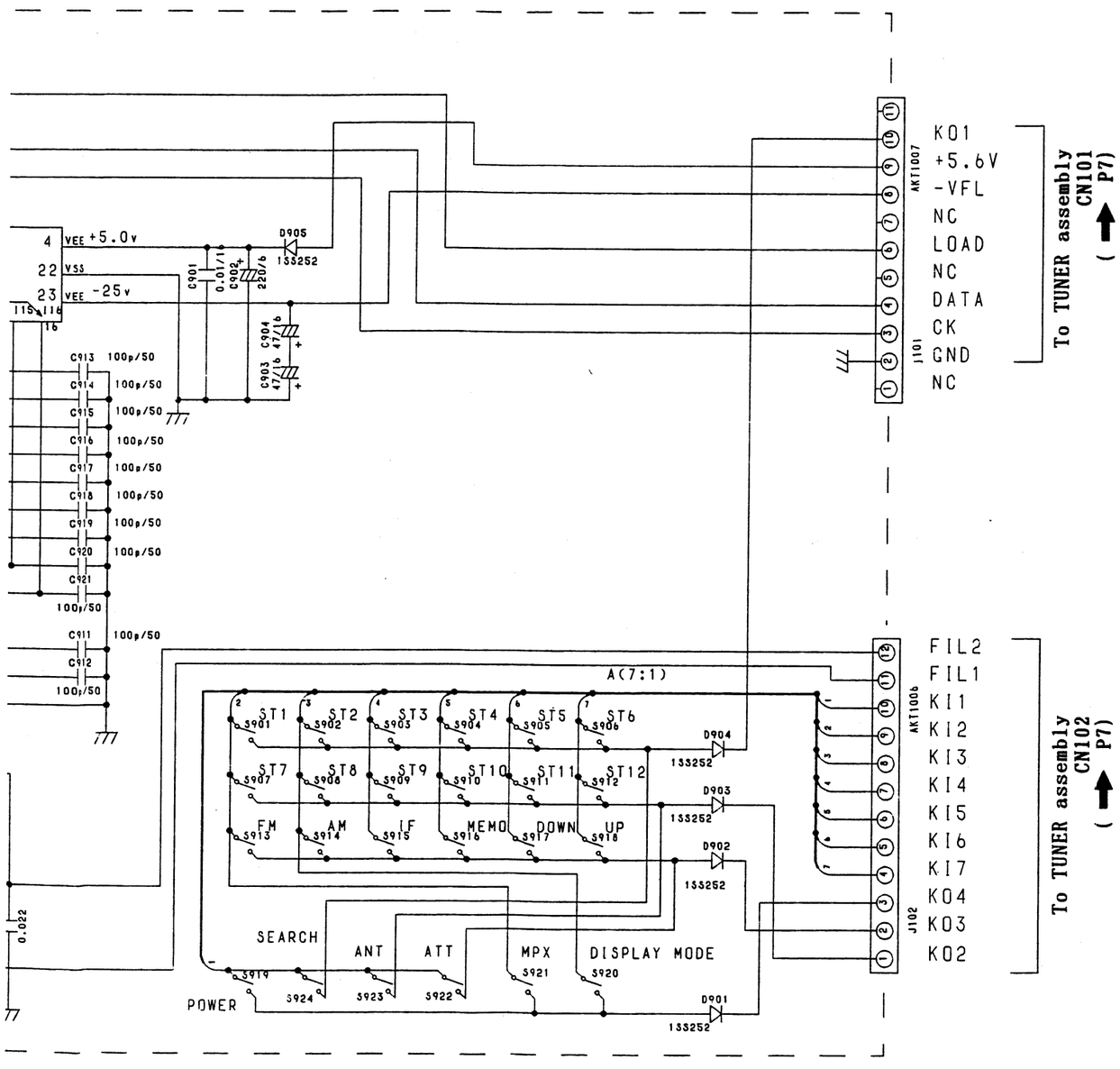


2.4 SCHEMATIC DIAGRAM OF DISPLAY ASSEMBLY (AWP1038)

DISPLAY assembly (AWP1038)



IC



1. RESISTORS :
Indicated in Ω, 1/4W, 1/8W, ±5% tolerance unless otherwise noted k ; kΩ, M ; MΩ, (F) ; ±1%, (G) ; ±2%, (K) ; ±10%, (M) ; ±20% tolerance.

2. CAPACITORS :
Indicated in capacity (μF) / voltage (V) unless otherwise noted p ; pF.
Indication without voltage is 50V except electrolytic capacitor.

3. VOLTAGE CURRENT :
⬅mA ; DC current at no input signal.
mV ; Signal voltage at FM 400Hz ± 75Hz DEV.
• The table in the margine shows the DC voltage at no signal.

4. OTHERS :
➡ ; Signal route.
⊘ ; Adjusting point.
The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
※ marked capacitors and resistors have parts numbers.

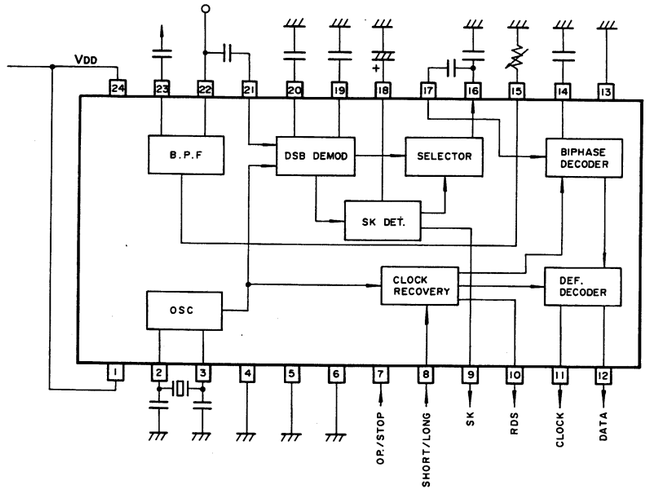
This is the basic schematic diagram, but the actual circuit may vary due to improvements in design.

5. SWITCHES

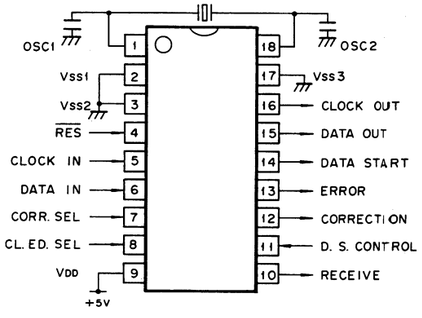
DISPLAY assembly

S901	ST1	S913	FM
S902	ST2	S914	AM
S903	ST3	S915	IF
S904	ST4	S916	MEMO
S905	ST5	S917	DOWN
S906	ST6	S918	UP
S907	ST7	S919	POWER
S908	ST8	S920	DISPLAY MODE
S909	ST9	S921	MPX
S910	ST10	S922	ATT
S911	ST11	S923	ANT
S912	ST12	S924	SEARCH

IC501 (PM4002)



IC502 (LC7073)



1. RESISTORS :
   Indicated in Ω, 1/4W, 1/8W, ±5% tolerance unless otherwise noted k ; kΩ, M ; MΩ, (F) ; ±1%, (G) ; ±2%, (K) ; ±10%, (M) ; ±20% tolerance.

2. CAPACITORS :
   Indicated in capacity (μF) / voltage (V) unless otherwise noted p ; pF.
   Indication without voltage is 50V except electrolytic capacitor.

3. VOLTAGE CURRENT :
   ⇐mA ; DC current at no input signal.
   mV ; Signal voltage at FM 400Hz ± 75Hz DEV.
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   ※ marked capacitors and resistors have parts numbers.

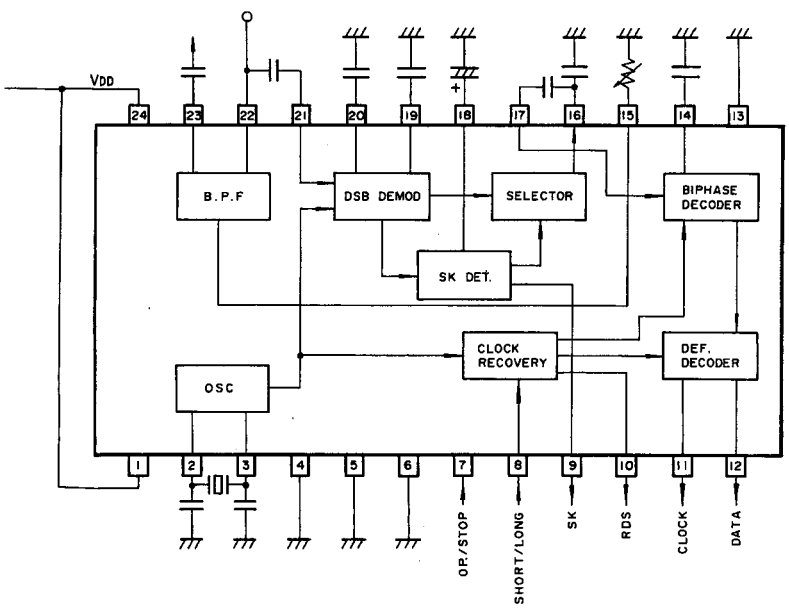
   This is the basic schematic diagram, but the actual circuit may vary due to improvements in design.

5. SWITCHES

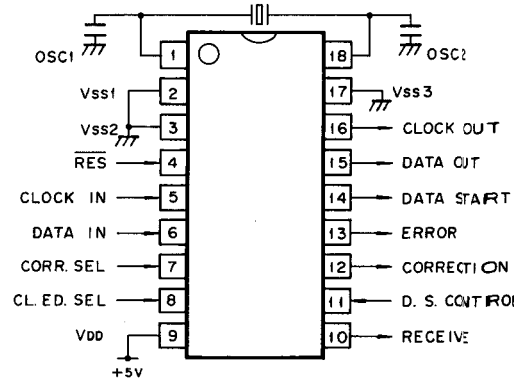
DISPLAY assembly

S901	ST1	S913	FM
S902	ST2	S914	AM
S903	ST3	S915	IF
S904	ST4	S916	MEMO
S905	ST5	S917	DOWN
S906	ST6	S918	UP
S907	ST7	S919	POWER
S908	ST8	S920	DISPLAY MODE
S909	ST9	S921	MPX
S910	ST10	S922	ATT
S911	ST11	S923	ANT
S912	ST12	S924	SEARCH

IC501 (PM4002)



IC502 (LC7073)



3. PCB's PARTS LIST

3.1 FOR F-550RDS/HE AND HB TYPES

NOTES:

- *Part without part number cannot be supplied.*
- *Parts marked by "◉" are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.*
- *The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.*
- *When ordering resistors, first convert resistance values into code form as shown in the following examples.*

Ex. 1 When there are 2 effective digits (any digit apart from 0), such as 560 ohm and 47k ohm (tolerance is shown by J = 5%, and K = 10%).

560Ω	*56 × 10¹*	*561*	*RD1/8PM 5 6 1 J*
47kΩ	*47 × 10³*	*473*	*RD1/4PS 4 7 3 J*
0.5Ω	*0R5*		*RN2H 0 R 5 K*
1Ω	*010*		*RS1P 0 1 0 K*

Ex. 2 When there are 3 effective digits (such as in high precision metal film resistors).

5.62kΩ	*562 × 10¹*	*5621*	*RN1/4SR 5 6 2 1 F*

Mark No.	Description	Parts No.
◉ TUNER ASSEMBLY (AWZ3695)		
SEMICONDUCTORS		
IC151, 152	AMPLIFIER IC	TA7060AP
IC201	FM IC	PA5008
IC231	MPX IC	PA5007
IC301	AM/FM IC	LA1265S
IC321	PLL IC	LM7001
IC351	REGULATOR IC	NJM78M56FAS
IC352	REGULATOR IC	MC7812CT
IC401	TUNER CONTROL μ-COM	PD5164A
IC453-456	OP-AMP IC	NJM4558S-X
IC501	RDS	PM4002
IC502	RDS	LC7073
Q101	TRANSISTOR	XDA143ES
Q102	TRANSISTOR	2SC1740S
Q103	TRANSISTOR	XDA143ES
Q107	TRANSISTOR	2SC2705
Q108	TRANSISTOR	2SC2603
Q151, 152	TRANSISTOR	XDA143ES
Q153-155	TRANSISTOR	2SC2668
Q201	N-FET	2SK246
Q281, 282	N-FET	2SK117
Q283, 284	N-FET	2SK246
Q301	TRANSISTOR	2SC1740S
Q321	N-FET	2SK246
Q322	TRANSISTOR	2SC1740SLN
Q351	TRANSISTOR	2SA1529
Q352, 353	TRANSISTOR	XDC143ES
Q354	TRANSISTOR	2SA1306A
Q355	TRANSISTOR	XDA143ES
Q356-359	TRANSISTOR	2SC2878
Q381	TRANSISTOR	2SC1740S
Q401	TRANSISTOR	XDC143ES

Mark No.	Description	Parts No.
Q501	TRANSISTOR	2SA1529
Q502	TRANSISTOR	2SC2668
Q503	TRANSISTOR	XDC124ES
D107	DIODE	1SS252
D108	DIODE	1SV156
D151-158	DIODE	1SS85
D201	DIODE	1SS252
D232-234	DIODE	1SS252
⚠ D351-354	DIODE	S5566
⚠ D357, 358	DIODE	S5566
D359	ZENER DIODE	RD30ESB2
D361	DIODE	1SS252
D362	ZENER DIODE	RD5.6ESB
D363, 381	DIODE	1SS252
D401-403	DIODE	1SS252
D405	ZENER DIODE	RD5.1ESB1
D501	DIODE	1SS252
RELAY		
RY101	RELAY	ASR-087
COILS & TRANSFORMER		
F151	CERAMIC FILTER	ATF-109
F152	CERAMIC FILTER	ATF1094
F153, 154	CERAMIC FILTER	ATF-119
F155	CERAMIC FILTER	ATF1094
F301	CERAMIC FILTER	ATF1042
L101, 152	AXIAL INDUCTOR	LAU2R2M
L231	COIL	ATM1003
L321	AXIAL INDUCTOR	LAU2R2M
L501	AXIAL INDUCTOR	LAU101K
T201	IF TRANSFORMER	ATE-068
CAPACITORS		
C101	CERAMIC CAPACITOR	CKDYX103M25
C102, 103	CERAMIC CAPACITOR	CKPUYY103M16

Mark No.	Description	Parts No.
C104	CERAMIC CAPACITOR	CKDYF473Z50
C106	CERAMIC CAPACITOR	CKDYF223Z50
C107	CERAMIC CAPACITOR	CKPUYY103M16
C108−110	CERAMIC CAPACITOR	CKDYX103M25
C111	CERAMIC CAPACITOR	CKPUYB102K50
C112	CERAMIC CAPACITOR	CKDYX103M25
C151, 152	CERAMIC CAPACITOR	CKDYF223Z50
C153	CERAMIC CAPACITOR	CKDYX473M25
C154	CERAMIC CAPACITOR	CKPUYY103M16
C156, 157	CERAMIC CAPACITOR	CKDYX103M25
C158	CERAMIC CAPACITOR	CKDYX473M25
C159	CERAMIC CAPACITOR	CKPUYY103M16
C201	CERAMIC CAPACITOR	CCMCH150J50
C202	CERAMIC CAPACITOR	CCMCH330J50
C203	ELECTR.CAPACITOR	CEAS010M50
C205	CERAMIC CAPACITOR	CKPUYY103M16
C206	ELECTROLYTIC CAPACIT	CEEA101M16
C207, 208	CERAMIC CAPACITOR	CKDYX473M25
C209	CERAMIC CAPACITOR	CKPUYY103M16
C210	ELECTR.CAPACITOR	CEAS010M50
C211	CERAMIC CAPACITOR	CKPUYY103M16
C212	ELECTR.CAPACITOR	CEAS010M50
C213, 214	CERAMIC CAPACITOR	CKMYB181K50
C215	ELECTR.CAPACITOR	CEAS4R7M50
C216	CERAMIC CAPACITOR	CKPUYY103M16
C217	ELECTROLYTIC CAPACIT	CEEA101M16
C231	ELECTR.CAPACITOR	CEAS220M25
C232	AUDIO FILM CAPACITOR	CFTXA473J50
C233	CERAMIC CAPACITOR	CKDYB152K50
C234	ELECTROLYTIC CAPACIT	CEAS1R5M50
C235	ELECTR.CAPACITOR	CEAS100M50
C236	CKA (390P/50V)	ACG−023
C237	ELECTROLYTIC CAPACIT	CEAS6R8M50
C238, 239	ELECTR.CAPACITOR	CEAS100M50
C240	PL.STYRENE CAPACITOR	CQSA682J50
C241	ELECTR.CAPACITOR	CEAS220M25
C242, 243	MYLOR FILM CAPACITOR	CQMA152J50
C244	ELECTR.CAPACITOR	CEAS470M10
C245	ELECTROLYTIC CAPACIT	CEEA102M16
C246, 247	CERAMIC CAPACITOR	CKPUYY103M16
C248	ELECTROLYTIC CAPACIT	CEEA221M16
C249, 250	ELECTROLYTIC CAPACIT	CEEA4R7M25
C251, 252	CERAMIC CAPACITOR	CKDYB472K50
C281	ELECTR.CAPACITOR	CEAS010M50
C301	CERAMIC CAPACITOR	CKPUYY103M16
C302	ELECTR.CAPACITOR	CEAS330M16

Mark No.	Description	Parts No.
C304	ELECTR.CAPACITOR	CEAS100M50
C305	ELECTR.CAPACITOR	CEANP4R7M35
C306	ELECTR.CAPACITOR	CEAS4R7M50
C307	CERAMIC CAPACITOR	CKDYB222K50
C308	CERAMIC CAPACITOR	CKDYX473M25
C309	CERAMIC CAPACITOR	CKDYF223Z50
C310	CERAMIC CAPACITOR	CKPUYY103M16
C311	ELECTR.CAPACITOR	CEAS470M10
C312	CERAMIC CAPACITOR	CKPUYY103M16
C313	CERAMIC CAPACITOR	CKDYF223Z50
C314	CERAMIC CAPACITOR	CKPUYY103M16
C315	CERAMIC CAPACITOR	CKDYF223Z50
C321, 322	CERAMIC CAPACITOR	CCMCH150J50
C323−325	AXIAL CERAMIC C.	CCPUSL470J50
C326, 327	CERAMIC CAPACITOR	CKPUYY103M16
C328	AXIAL CERAMIC C.	CCPUSL470J50
C329	ELECTR.CAPACITOR	CEAS330M16
C330	AUDIO FILM CAPACITOR	CFTXA224J50
C331	CERAMIC CAPACITOR	CKPUYY103M16
⚠ C351	CAPACITOR (0.047μ)	ACG−009−0
C352	ELECTROLYTIC CAPACIT	CEEA222M35
C354	ELECTR.CAPACITOR	CEAS330M16
C355	ELECTR.CAPACITOR	CEAS221M25
C357	CERAMIC CAPACITOR	CKDYF473Z50
C358	ELECTROLYTIC CAPACIT	CEAS102M35
C359	ELECTROLYTIC CAPACIT	CEAS470M35
C360	ELECTR.CAPACITOR	CEAS101M35
C361	ELECTR.CAPACITOR	CEAS470M10
C381	CERAMIC CAPACITOR	CKPUYB101K50
C401	CERAMIC CAPACITOR	CKPUYY103M16
C402	ELECTR.CAPACITOR	CEAS221M10
C404	CEA (47000/5.5V)	ACH1037
C405	ELECTR.CAPACITOR	CEAS010M50
C406	CERAMIC CAPACITOR	CKPUYB101K50
C407	CERAMIC CAPACITOR	CKPUYB102K50
C409	CERAMIC CAPACITOR	CKPUYB101K50
C410	CERAMIC CAPACITOR	CKDYX103M25
C411	ELECTR.CAPACITOR	CEAS100M50
C456, 457	ELECTROLYTIC CAPACIT	CEEANP4R7M25
C487−496	MYLOR FILM CAPACITOR	CQMA103J50
C501	CERAMIC CAPACITOR	CKPUYY103M16
C502, 503	CERAMIC CAPACITOR	CCDCH120J50
C504	CERAMIC CAPACITOR	CKDYX103M25
C505	CERAMIC CAPACITOR	CKDYX473M25
C506	CERAMIC CAPACITOR	CKDYX223M25
C507	ELECTR.CAPACITOR	CEAS2R2M50
C508, 509	CERAMIC CAPACITOR	CKDYB332K50
C510, 511	CERAMIC CAPACITOR	CKDYB472K50
C512	CERAMIC CAPACITOR	CKPUYY103M16
C513	ELECTR.CAPACITOR	CEAS471M10

Mark No.	Description	Parts No.
C514	CERAMIC CAPACITOR	CKDYB102K50
C515	CERAMIC CAPACITOR	CKPUYY103M16
C516	ELECTR.CAPACITOR	CEAS101M35
RESISTORS		
VR201, 202	VR	ACP1042
VR203	VR	ACP1040
VR204	VR	ACP1043
VR205	VR	ACP1046
VR206	VR	ACP1038
VR231	VR	VRTS6VS222
VR232, 281	VR	ACP1044
VR282, 301	VR	ACP1043
VR501	VR	ACP1045
R102	CARBON FILM RESISTOR	RD1/2PM751J
R202, 203	CARBON FILM RESISTOR	RDR1/4PM103J
R204, 205	CARBON FILM RESISTOR	RDR1/4PM332J
R235	METALFILM RESISTER	RN1/4PQ5601F
R237, 238	CARBON FILM RESISTOR	RDR1/4PM223J
R241, 242	CARBON FILM RESISTOR	RDR1/4PM333J
R245, 246	CARBON FILM RESISTOR	RDR1/4PM333J
R247–250	CARBON FILM RESISTOR	RDR1/4PM102J
R251, 252	CARBON FILM RESISTOR	RDR1/4PM152J
R281, 282	CARBON FILM RESISTOR	RDR1/4PM331J
R353	CARBONFILM RESISTOR	RD1/2PM471J
R354	FUSLIBLE RESISTOR	RFA1/4PS100J
R355	CARBON FILM RESISTOR	RD1/2PM222J
R358–361	CARBON FILM RESISTOR	RD1/4PM010J
R437	RESISTOR ARRAY(22K)	RA8T223J
R455, 456	CARBON FILM RESISTOR	RDR1/6PU103J
R457, 458	CARBON FILM RESISTOR	RDR1/4PM122J
R459, 460	CARBON FILM RESISTOR	RDR1/4PM132J
R461–464	CARBON FILM RESISTOR	RDR1/4PM361J
R465, 466	CARBON FILM RESISTOR	RDR1/6PU122J
R467, 468	CARBON FILM RESISTOR	RDR1/6PU102J
R469, 470	CARBON FILM RESISTOR	RDR1/4PM181J
R471–478	CARBON FILM RESISTOR	RDR1/6PU102J

Mark No.	Description	Parts No.
	Other resistors	RD1/8PM□□□J
OTHERS		
	PIN JACK 2P (OUTPUT)	AKB1039
	TERMINAL 2–P (ANTENNA)	AKE–060
	JACK (CONTROL)	AKN–207
	SOCKET (ANTENNA FM)	AKX1034
	4 SERIAL F.E. MODULE ASSEMBLY	AXQ1004
	AM RF TUNING BLOCK	AXX1011
CN101	CONNECTOR(10P)	KPE10
CN102	CONNECTOR(12P)	KPE12
X301	CERAMIC RESONATOR	ATF1027
X321	CRYSTAL RESONATOR	ASS1005
X401	CERAMIC RESONATOR	ASS1055
X501	CRYSTAL RESONATOR	ASS1061
X502	CERAMIC RESONATOR	ASS1025
TH201	THERMISTOR	TH103–2

◉ POWER ASSEMBLY (AWZ3697)

TRANSFORMER

⚠	T351	POWER TRANSFORMER	ATT1168

DISPLAY ASSEMBLY (AWP1038)

SEMICONDUCTORS

IC901	FL DRIVER IC	MSC7112–01SS
D901–905	DIODE	1SS252
D906	LED	AEL1072

SWITCHES

S901–924	SWITCH	ASG1034

CAPACITORS

C901	CERAMIC CAPACITOR	CKPUYY103M16
C902	ELECTR.CAPACITOR	CEJA221M6
C903, 904	ELECTROLYTIC CAPACIT	CEJA470M16
C905, 906	CERAMIC CAPACITOR	CKPUYB101K50
C907, 908	CERAMIC CAPACITOR	CKDYF223Z50
C909, 910	CAPACITOR ARRAY (100p/50)	ACG1031
C911–921	CERAMIC CAPACITOR	CKPUYB101K50

RESISTORS

	All resistors	RD1/8PM□□□J

OTHERS

V901	FL TUBE	AAV1124

3.2 FOR F-550RDS/HEWZI TYPE

NOTES:

- *Part without part number cannot be supplied.*
- *The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.*
- *Parts marked by "◉" are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.*

◉ TUNER assembly (AWZ3694)

The TUNER assembly (AWZ3694) is the same as the TUNER assembly (AWZ3695) with the exception of the following sections.

Mark	Symbol & Description	Part No.		Remarks
		AWZ3695	AWZ3694	
	L102-L104	.....	LAU220K	
	L232	.....	LAU010M	
	L233, L234	.....	LAU100K	
	TC101	.....	ACM-018	
	C253	.....	CKDYX103M25	
	R153, R154, R162	RD1/8PM102J	RD1/8PM471J	
	R247, R248	RD1/8PM102J	RDR1/4PM822J	
	R249, R250	RDR1/4PM102J	RDR1/4PM821J	
	R251, R252	RDR1/4PM152J	RDR1/4PM222J	
	AM RF Tuning block	AXX1011	AXX1014	

◉ POWER assembly (AWZ3696)

The POWER assembly (AWZ3696) is the same as the POWER assembly (AWZ3697) with the exception of the following sections.

Mark	Symbol & Description	Part No.		Remarks
		AWZ3697	AWZ3696	
⚠	L351	.....	ATF-163	
⚠	C353 (0.01/AC400V)	.....	ACG1002	

4. ADJUSTMENTS

The F – 550RDS/HE, HB and HEWZI types are the same as the F – 676/HEWZ type with the exception of the following sections.

4.1 FM MONO

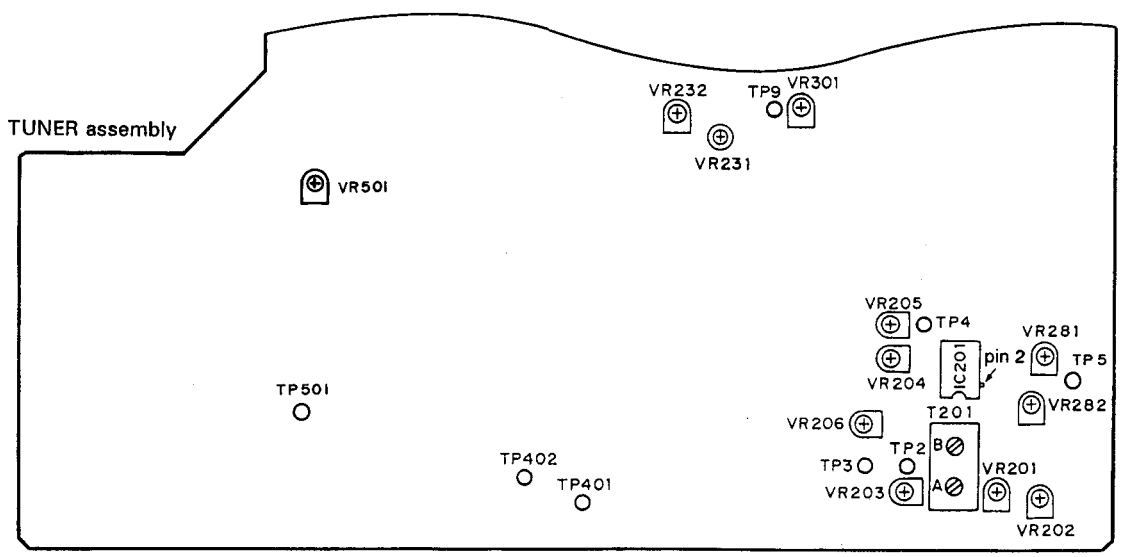
Step	Adjustment Name	FM SG (1kHz±75kHz dev.)			FL display, IF BAND etc.	Location	Adjustment	Content of change
		Frequency	Modulation	Level				
3	Sub-balance adjustment	98MHz	MONO	60dBμ	98MHz NORMAL	VR206	Adjust so that the AC voltage at TP5 becomes minimum.	Adjustment ; IC201 → TP5

4.2 FM STEREO

Step	Adjustment Name	FM SG (1kHz±75kHz dev.)			FL display, IF BAND etc.	Location	Adjustment	Content of change
		Frequency	Modulation	Level				
7	Noise reduction adjustment	89MHz	L-ONLY	60dBμ	89MHz NORMAL MPX NR : ON/OFF	VR451	Adjust so that the output level, when ON, becomes $+1^{+0.5}_{-0.5}$dB when the MPX NR of the main unit is OFF.	Deleted.

4.3 FM ETC

Step	Adjustment Name	FM SG (1kHz±75kHz dev.)			FL display, IF BAND etc.	Location	Adjustment	Content of change
		Frequency	Modulation	Level				
3	SK level adjustment	88MHz	RF SG (External)	60dBμ	88MHz NORMAL (ATT ON)	VR501	Adjust so that the voltage between TP501 (57kHz) and GND becomes maximum.	Added.



Adjustment Point

PION-03020

PIONEER®
The Art of Entertainment

Service Manual

ORDER NO.
ARP2242

FM/AM DIGITAL SYNTHESIZER TUNER

F-676
F-676-S

F–676, F–676–S AND F–51 HAVE THE FOLLOWING:

Type	Model			Power Requirement	Remarks
	F–676	F–676–S	F–51		
HEWZ	O	O	–	AC220V–230V, 240V (switchable) *	
HE	O	–	–	AC220V–230V, 240V (switchable) *	
HB	O	–	–	AC220V–230V, 240V (switchable) *	
HIX1B	O	–	–	AC220V–230V, 240V (switchable) *	
KU	–	–	O	AC120V only	

* Change the primary wiring of the power transformer.

- **This manual is applicable to the F–676/HEWZ, HE, HB and F–676–S/HEWZ types.**
- **As to the F–676/HE, HB and F–676–S/HEWZ types, refer to page 33.**
- **As to the other types, refer to applicable service manuals.**
- **The F–676–S is the same as the F–676 except for color.**
- **Ce manuel pour le service comprend les explications de réglage en français.**
- **Este manual de servicio trata del método ajuste escrito en español.**

PIONEER ELECTRONIC CORPORATION 4-1, Meguro 1-Chome, Meguro-ku, Tokyo 153, Japan
PIONEER ELECTRONICS SERVICE INC. P.O. Box 1760, Long Beach, California 90801 U.S.A.
PIONEER ELECTRONICS OF CANADA, INC. 505 Cochrane Drive, Markham, Ontario L3R 8E3 Canada
PIONEER ELECTRONIC [EUROPE] N.V. Keetberglaan 1, 9120 Beveren, Belgium
PIONEER ELECTRONICS AUSTRALIA PTY. LTD. 178-184 Boundary Road, Braeside, Victoria 3195, Australia TEL: [03] 580-991

SV APR. 1991

CONTENTS

This service manual is intended for qualified service technicians; it is not meant for the casual do-it-yourselfer. Qualified technicians have the necessary test equipment and tools, and have been trained to properly and safely repair complex products such as those covered by this manual.
Improperly performed repairs can adversely affect the safety and reliability of the product and may void the warranty. If you are not qualified to perform the repair of this product properly and safely, you should not risk trying to do so and refer the repair to a qualified service technician.

WARNING
Lead in solder used in this product is listed by the California Health and Welfare agency as a known reproductive toxicant which may cause birth defects or other reproductive harm (California Health & Safety Code, Section 25249.5).
When servicing or handling circuit boards and other components which contain lead in solder, avoid unprotected skin contact with the solder. Also, when soldering do not inhale any smoke or fumes produced.

1. SAFETY INFORMATION

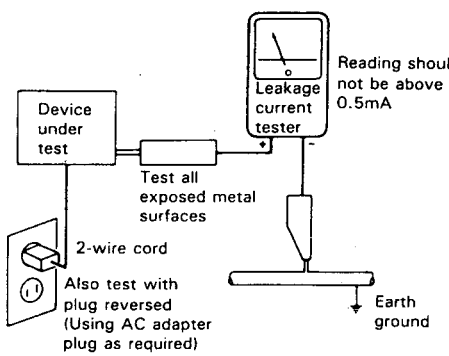
(FOR USA MODEL ONLY)

1. SAFETY PRECAUTIONS

The following check should be performed for the continued protection of the customer and service technician.

LEAKAGE CURRENT CHECK

Measure leakage current to a known earth ground (water pipe, conduit, etc.) by connecting a leakage current tester such as Simpson Model 229-2 or equivalent between the earth ground and all exposed metal parts of the appliance (input/output terminals, screwheads, metal overlays, control shaft, etc.). Plug the AC line cord of the appliance directly into a 120V AC 60Hz outlet and turn the AC power switch on. Any current measured must not exceed 0.5mA.



AC Leakage Test

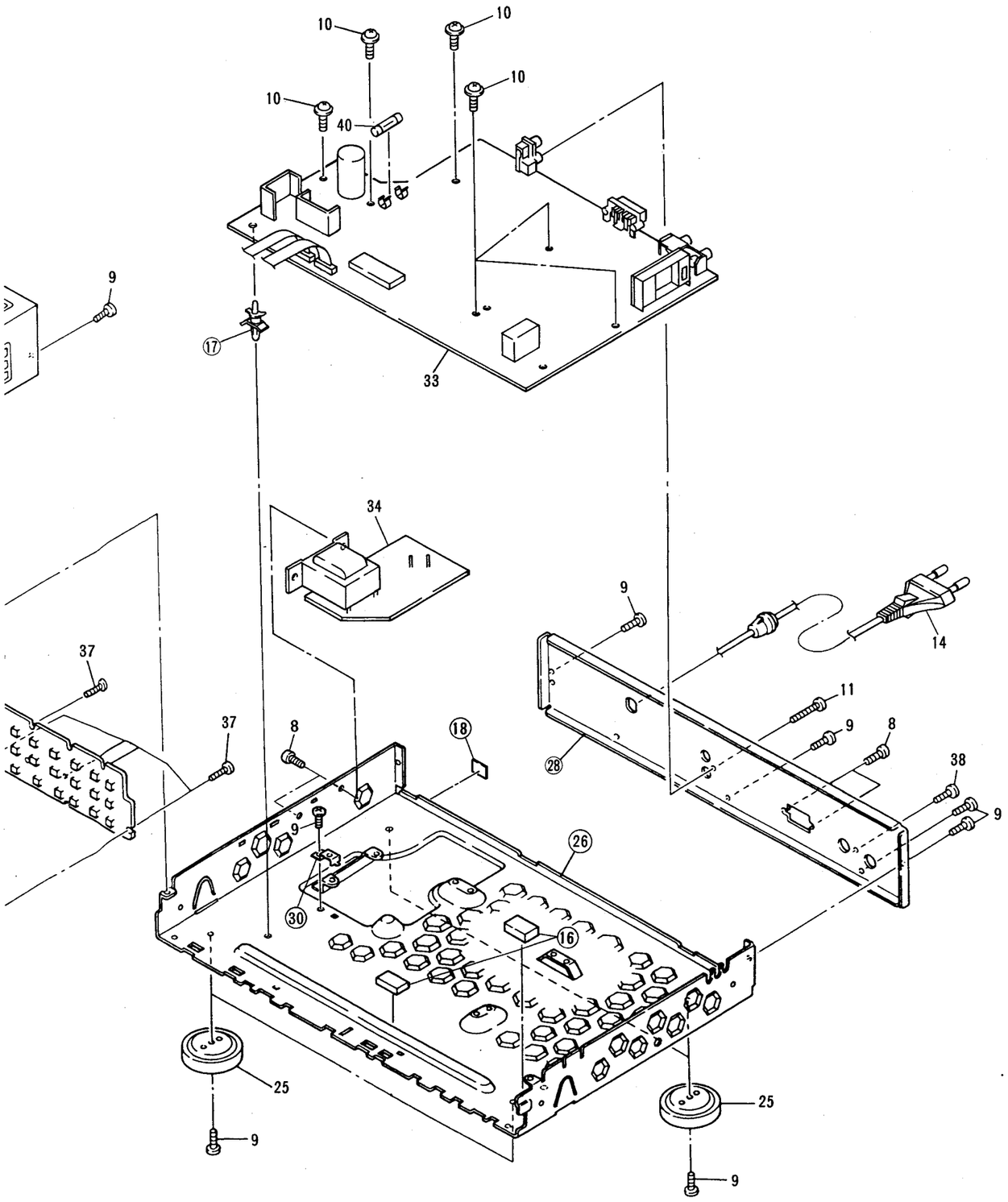
ANY MEASUREMENTS NOT WITHIN THE LIMITS OUTLINED ABOVE ARE INDICATIVE OF A POTENTIAL SHOCK HAZARD AND MUST BE CORRECTED BEFORE RETURNING THE APPLIANCE TO THE CUSTOMER.

2. PRODUCT SAFETY NOTICE'

Many electrical and mechanical parts in the appliance have special safety related characteristics. These are often not evident from visual inspection nor the protection afforded by them necessarily can be obtained by using replacement components rated for voltage, wattage, etc. Replacement parts which have these special safety characteristics are identified in this Service Manual.

Electrical components having such features are identified by marking with a ⚠ on the schematics and on the parts list in this Service Manual.
The use of a substitute replacement component which dose not have the same safety characteristics as the PIONEER recommended replacement one, shown in the parts list in this Service Manual, may create shock, fire, or other hazards.

Product Safety is continuously under review and new instructions are issued from time to time. For the latest information, always consult the current PIONEER Service Manual. A subscription to, or additional copies of, PIONEER Service Manual may be obtained at a nominal charge from PIONEER.



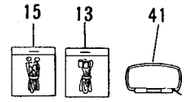
NOTES:

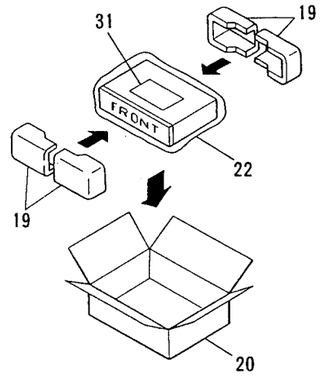
- Parts without part number cannot be supplied.
- The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
- Parts marked by "⊙" are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.

Parts List

Mark	No.	Description	Part No.
	1	LIGHT ACTION BUTTON	AAD1733
	2	STATION BUTTON(ABS) (1/13/25 – 6/18/30)	AAD1751
	3	STATION BUTTON(ABS) (7/19/31 – 12/24/36)	AAD1752
	4	PANEL	AAK1685
	5	FL FILTER	AAK1785
	6	.....	
	7	NAME PLATE (METAL)	AAM1029
	8	SCREW	ABA – 298
	9	SCREW (STEEL)	ABA1009
	10	SCREW (STEEL)	ABA1011
	11	SCREW (STEEL)	ABA1047
	12	SCREW (STEEL)	ABA1048
	13	PLUG CORD	ADE – 044
⚠	14	AC POWER CORD	ADG1010
	15	FM ANTENNA	ADH1002
	16	CUSHION (RUBBER)	
	17	.....	
	18	SPACER	
	19	FRONT REAR PAD	AHA1095
	20	PACKING CASE	AHD2053
	21	.....	
	22	PACKING SHEET	AHG1017
	23	PANEL BASE	AMB1815
	24	INDICATING LENS	AMR1160
	25	INSULATOR ASSY	AMR2140
	26	CHASSIS ASSY	
	27	FRONT PANEL	ANB1449
	28	REAR PANEL	
	29	BONNET	AZN1745
	30	PCB HOLDER	
	31	OPREATING INSTRUCTIONS (GERMAN)	ARC1263
	32	.....	
⊙	33	TUNER ASSEMBLY	AWZ3635
⊙	34	POWER ASSEMBLY	AWZ3639
	35	DISPLAY ASSEMBLY	AWP1034
	36	SCREW	BBT30P060FZK
	37	SCREW	BPZ26P080FMC
	38	SCREW	VMZ30P060FCU
	39	.....	
⚠	40	FU1 FUSE (T400MA)	AEK – 504
	41	L1 LOOP ANTENNA	ATB1006

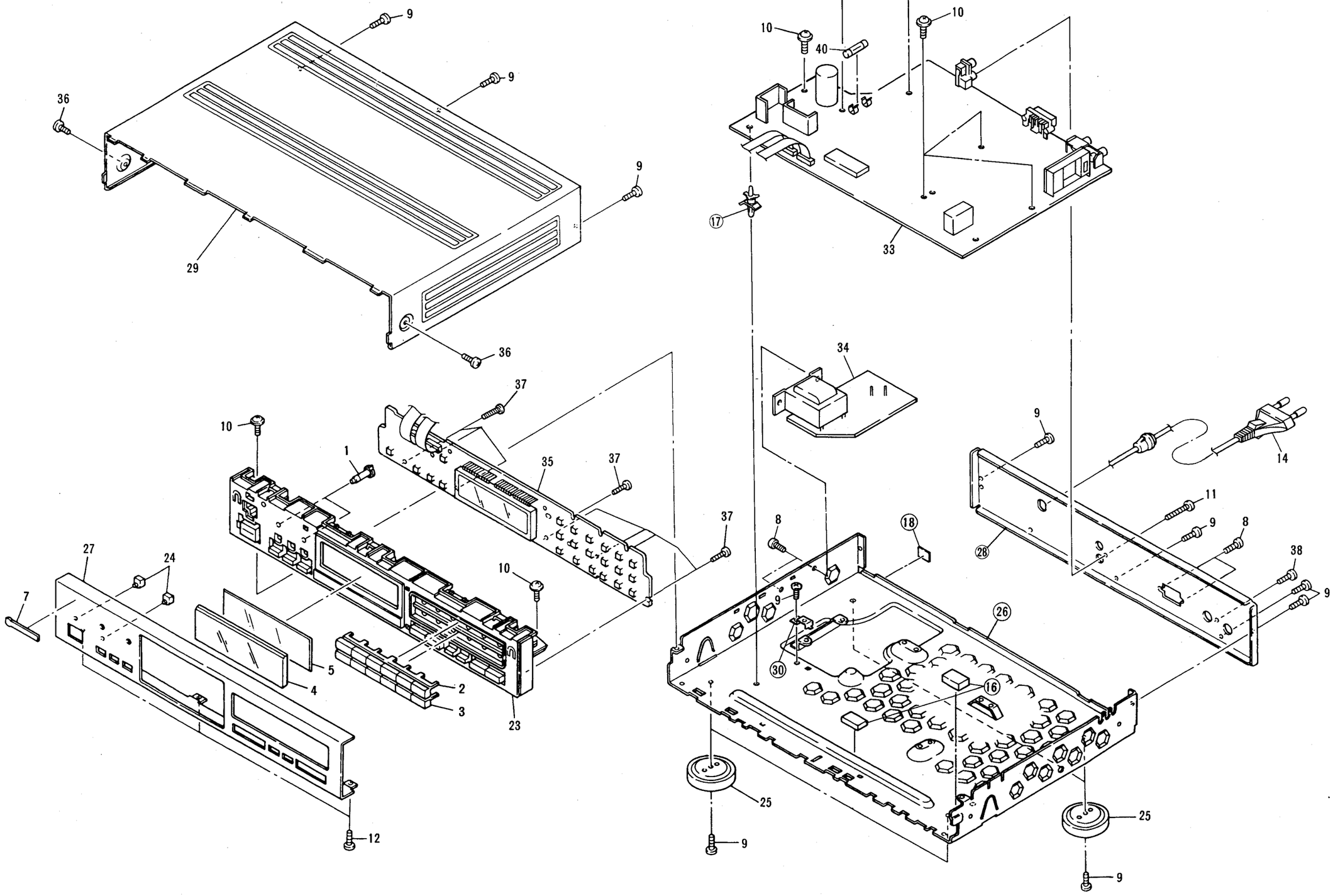
Packing





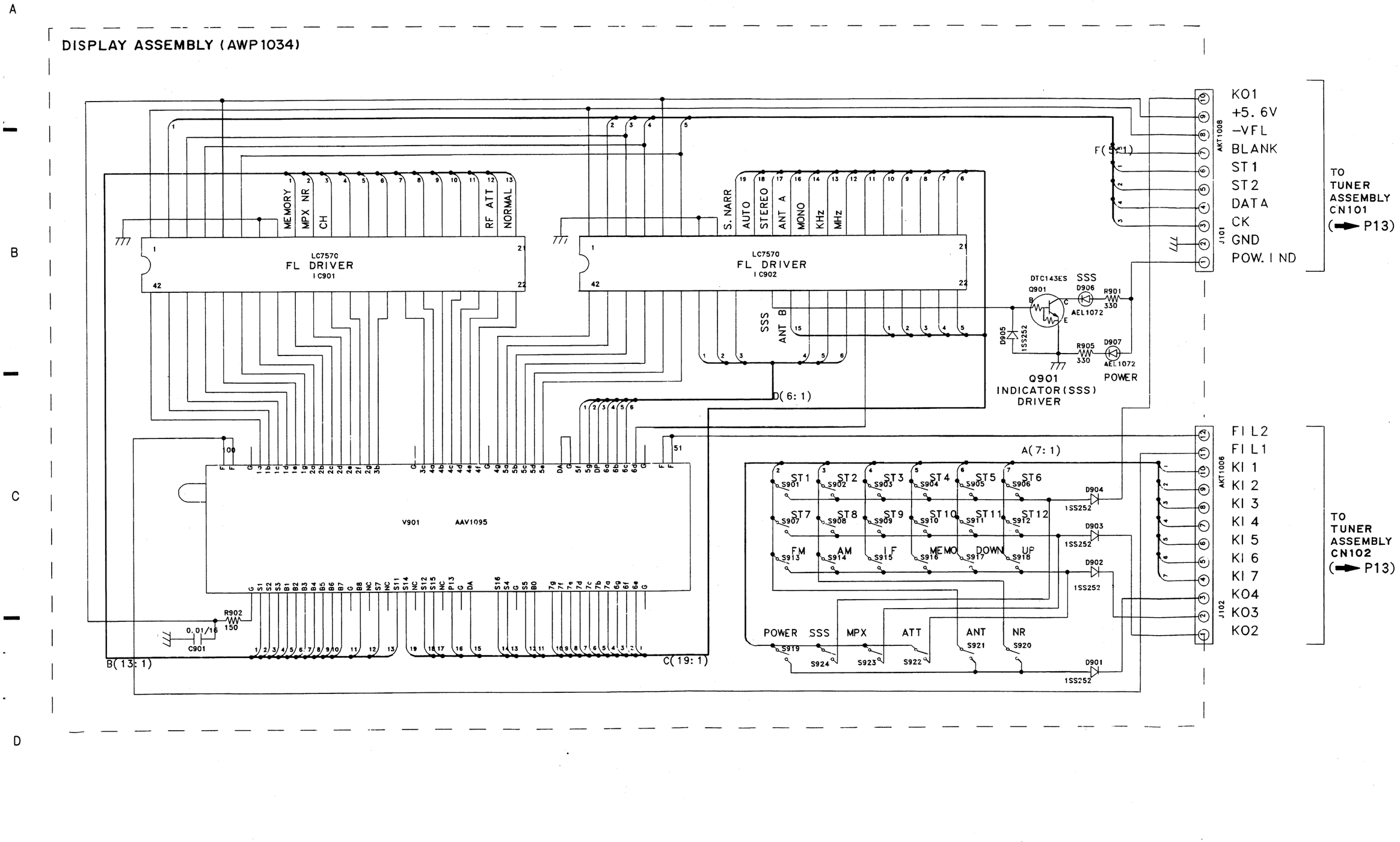
2. EXPLODED VIEWS, PACKING AND PARTS LIST

EXPLODED VIEWS



3. SCHEMATIC DIAGRAM

3.1 DISPLAY ASSEMBLY (AWP1034)



1. RESISTORS :
Indicated in Ω, 1
noted k ; kΩ, M
(M) ; ±20% tole

2. CAPACITORS :
Indicated in capaci
Indication withou

3. VOLTAGE CURRE
⬅mA ; DC curren
mV ; Signal vol
• The table in th

4. OTHERS :
➡ ; Signal route.
⊘ ; Adjusting poi
The ⚠ mark fou
importance of th
replacing, be sure
※ marked capacit

This is the basic
vary due to impr

IC151
(TA7060AP)

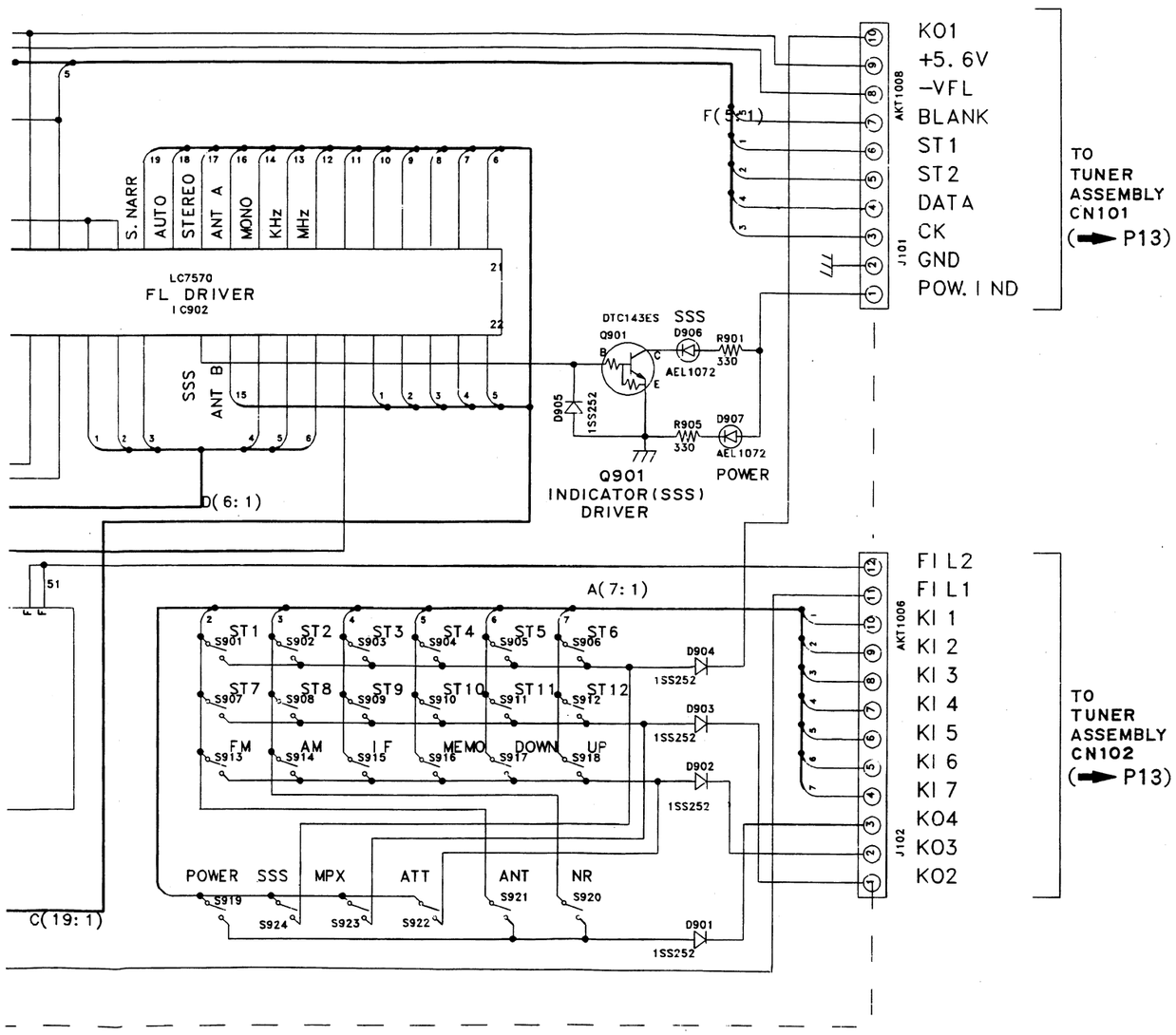
Pin No.	Volts
1	1.45
2	1.45
3	0
4	9.14
5	11.3

IC152
(TA7060AP)

Pin No.	Volts
1	1.47
2	1.47
3	0.0
4	8.96
5	11.3

IC452
(LA3607)

Pin No.	Volts	Pin No.
1	6.16	11
2	5.65	12
3	6.2	13
4	5.66	14
5	6.2	15
6	5.66	16
7	6.2	17
8	5.65	18
9	6.2	19
10	5.66	20



1. RESISTORS :
Indicated in Ω, 1/4W, 1/8W, ±5% tolerance unless otherwise noted k ; kΩ, M ; MΩ, (F) ; ±1%, (G) ; ±2%, (K) ; ±10%, (M) ; ±20% tolerance.

2. CAPACITORS :
Indicated in capacity (μF) / voltage (V) unless otherwise noted p ; pF.
Indication without voltage is 50V except electrolytic capacitor.

3. VOLTAGE CURRENT :
⬅mA ; DC current at no input signal.
mV ; Signal voltage at FM 400Hz ± 75Hz DEV.
• The table in the margine shows the DC voltage at no signal.

4. OTHERS :
➡ ; Signal route.
⊘ ; Adjusting point.
The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
※ marked capacitors and resistors have parts numbers.

This is the basic schematic diagram, but the actual circuit may vary due to improvements in design.

5. SWITCHES (Underline indicates switch position)
DISPLAY ASSEMBLY

S901 : ST1	S913 : FM
S902 : ST2	S914 : AM
S903 : ST3	S915 : IF
S904 : ST4	S916 : MEMO
S905 : ST5	S917 : DOWN
S906 : ST6	S918 : UP
S907 : ST7	S919 : POWER
S908 : ST8	S920 : NR
S909 : ST9	S921 : ANT
S910 : ST10	S922 : ATT
S911 : ST11	S923 : MPX
S912 : ST12	S924 : SSS

IC151 (TA7060AP)

Pin No.	Volts
1	1.45
2	1.45
3	0
4	9.14
5	11.3

IC152 (TA7060AP)

Pin No.	Volts
1	1.47
2	1.47
3	0.0
4	8.96
5	11.3

IC231 (PA5007)

Pin No.	Volts	Pin No.	Volts
1	6.96	16	12.3
2	3.08	17	0
3	3.07	18	0
4	3.07	19	6.23
5	1.43	20	6.23
6	5.34	21	6.23
7	3.09	22	6.23
8	3.09	23	6.2
9	0	24	6.2
10	6.99	25	6.21
11	9.15	26	6.22
12	8.84	27	5.51
13	22.7	28	5.44
14	5.28	29	6.22
15	6.3	30	6.22

IC301 (LA1265S)

Pin No.	Volts	Pin No.	Volts
1	2.31	12	1.47
2	2.31	13	0.6
3	2.31	14	0.9
4	0	15	2.31
5	12.3	16	1.4
6	12.3	17	0
7	12.3	18	0
8	12.4	19	0
9	12.2	20	0.6
10	2.28	21	3.87
11	1.54	22	2.7

IC451 (PA0042)

Pin No.	Volts	Pin No.	Volts
1	12.3	16	6.34
2	6.13	17	6.32
3	6.13	18	6.35
4	6.33	19	6.31
5	6.33	20	6.35
6	6.33	21	6.31
7	6.32	22	6.34
8	6.35	23	0
9	6.32	24	0
10	6.35	25	0
11	6.32	26	6.34
12	6.34	27	6.34
13	6.32	28	6.35
14	6.35	29	6.34
15	6.32	30	0

IC452 (LA3607)

Pin No.	Volts	Pin No.	Volts
1	6.16	11	6.11
2	5.65	12	5.64
3	6.2	13	5.11
4	5.66	14	5.64
5	6.2	15	6.42
6	5.66	16	5.64
7	6.2	17	6.64
8	5.65	18	12.3
9	6.2	19	6.6
10	5.66	20	0

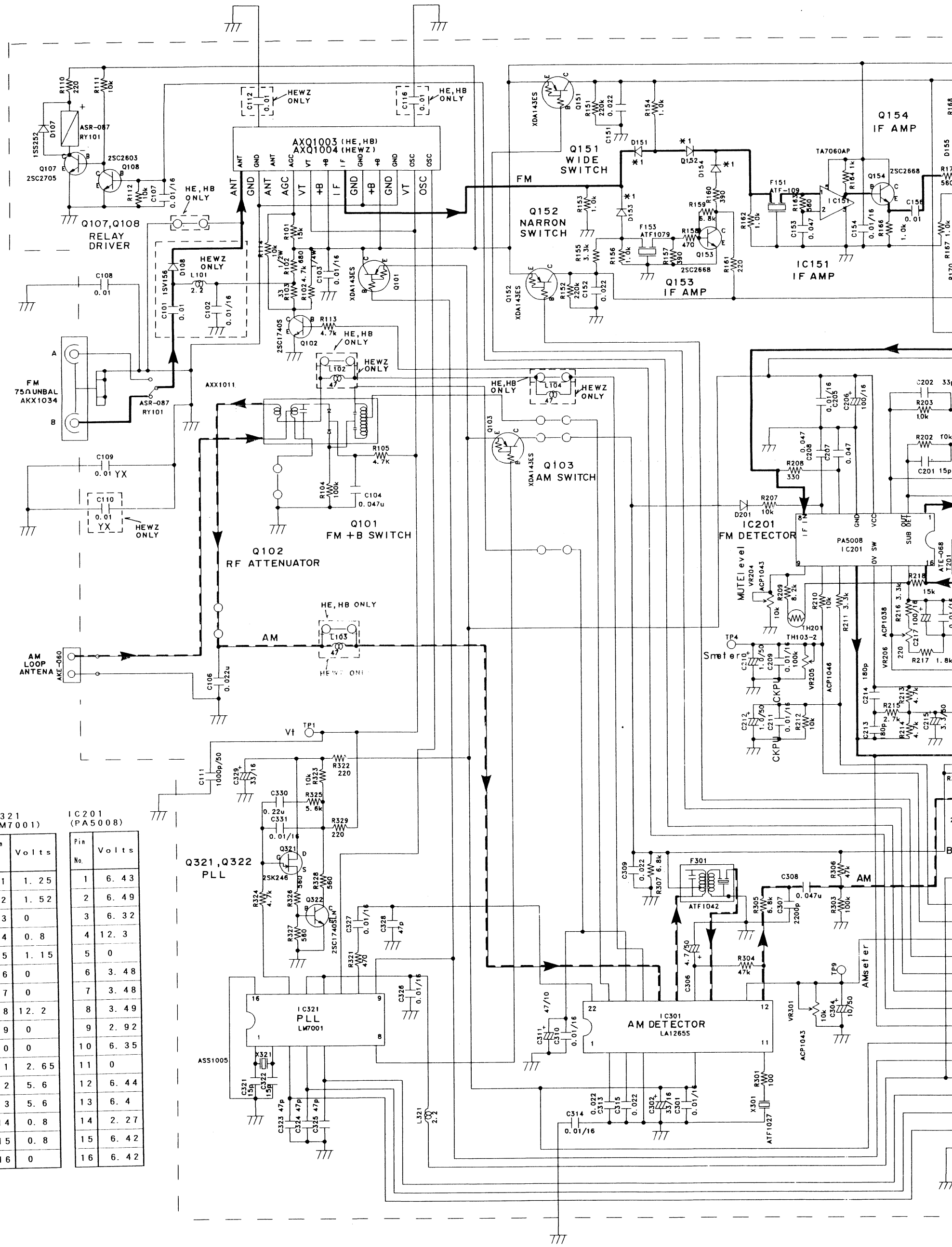
IC453 (NJM4558S)

Pin No.	Volts
1	12.3
2	6.22
3	6.16
4	6.21
5	0
6	6.2
7	6.17
8	6.23
9	12.3

IC454, IC455, IC456 (NJM4558S)

Pin No.	Volts
1	12.3
2	6.22
3	6.15
4	6.23
5	0
6	6.23
7	6.17
8	6.23
9	12.3

3.2 TUNER ASSEMBLY (1/2) (AWZ3635)



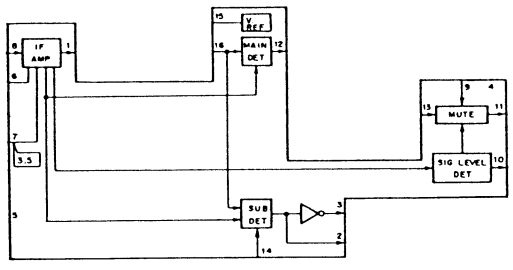
IC321 (LM7001)

Pin No.	Volts
1	1.25
2	1.52
3	0
4	0.8
5	1.15
6	0
7	0
8	12.2
9	0
10	0
11	2.65
12	5.6
13	5.6
14	0.8
15	0.8
16	0

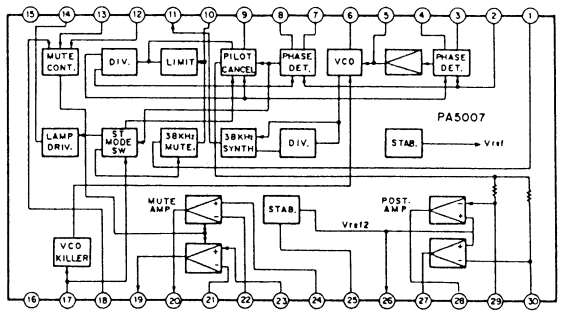
IC201 (PA5008)

Pin No.	Volts
1	6.43
2	6.49
3	6.32
4	12.3
5	0
6	3.48
7	3.48
8	3.49
9	2.92
10	6.35
11	0
12	6.44
13	6.4
14	2.27
15	6.42
16	6.42

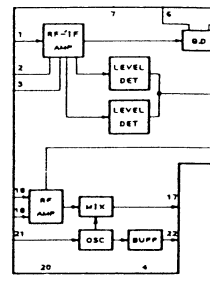
IC201 (PA5008)



IC231 (PA5007)



IC301 (LA1265S



Q151 WIDE SWITCH
Q152 NARRON SWITCH
Q153 IF AMP
IC151 IF AMP
Q154 IF AMP
IC152 IF AMP
Q155 IF AMP
Q201,Q281,Q282 SWITCH
IC451 FM NR
Q103 AM SWITCH
IC201 FM DETECTOR
Q283,Q284 SWITCH
Q301 BUFFER
IC231 DDD TYPE IV
IC301 AM DETECTOR
VCO
FM
AM
FM/AM
MUTE
FROM TUNER ASSEMBLY (2/2) (P12,P13)

OV. MUTE
FM. SM
AM. SM
NARROW
WIDE
ANT. AB
RF. ATT
FM. COMP (for RDS)
+13V
FM+ (for RDS)
+5. 6V
DATA
CK
CE
GND

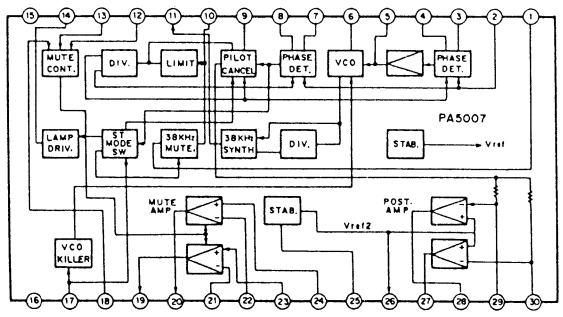
*1

	D151-D158
HE, HB ONLY	1SS252
HEWZ ONLY	1SS85

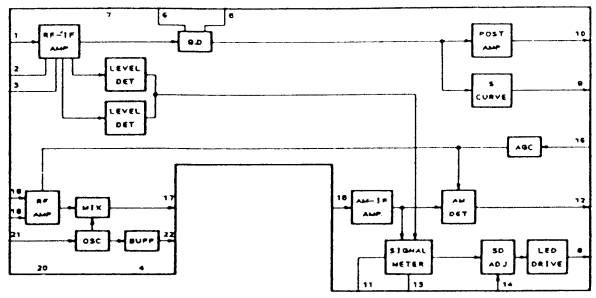
*2

	R251 R252	R281 R282	R287 R288	R457 R458	R459 R460
HE, HB ONLY	1.5K	330 (1/8W)	1K	820 (1/8W)	1.3K (1/8W)
HEWZ, ONLY	2.2K	330 (1/4W)	12K	820 (1/4W)	1.3K (1/4W)

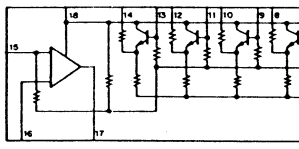
IC231 (PA5007)

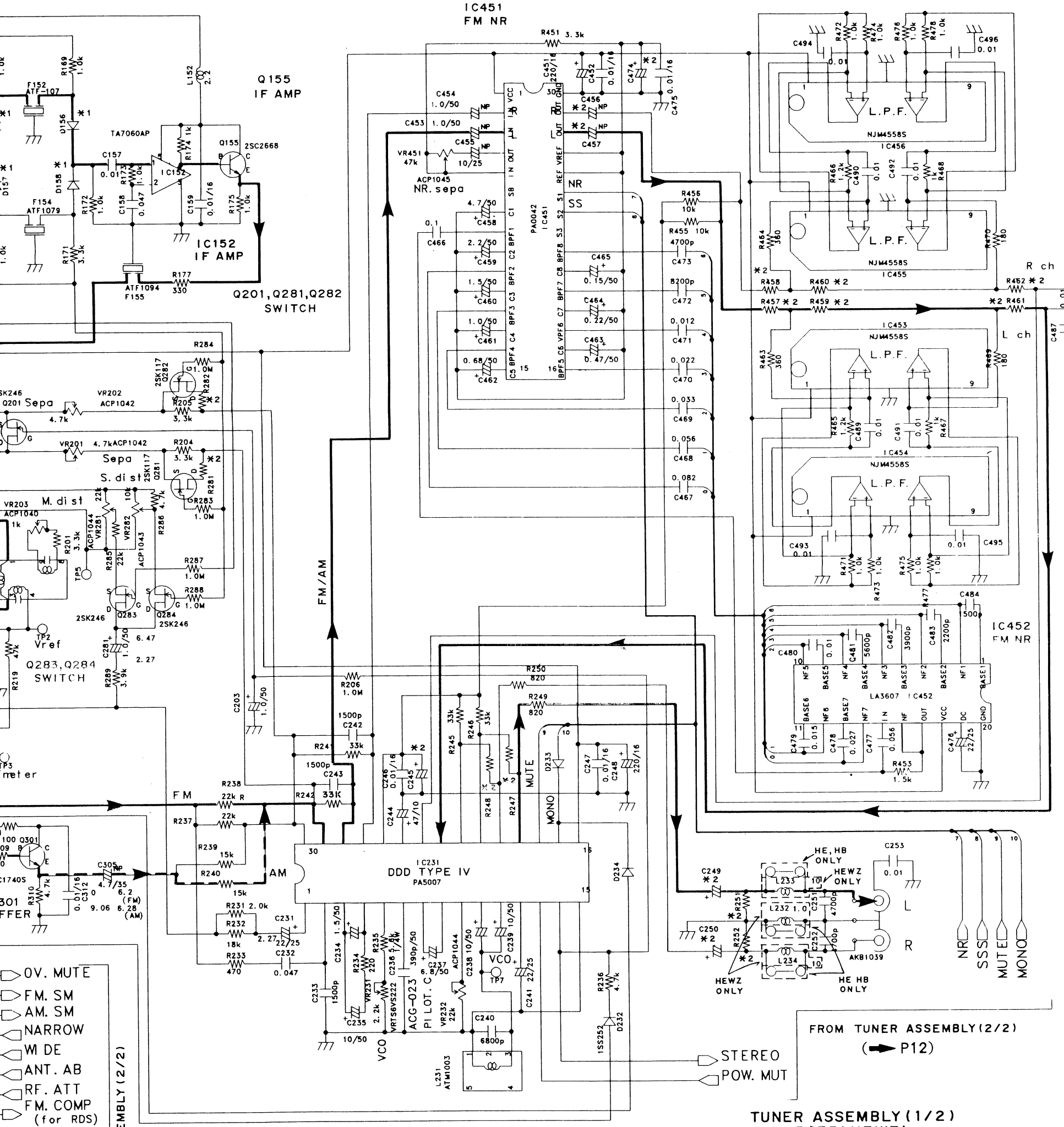


IC301 (LA1265S)



IC452 (LA3607)





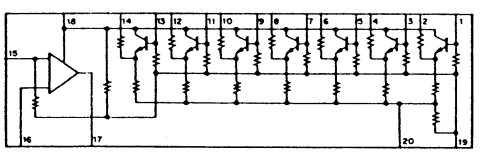
*1

	D151-D158
HE, HB ONLY	1SS252
HEWZ ONLY	1SS85

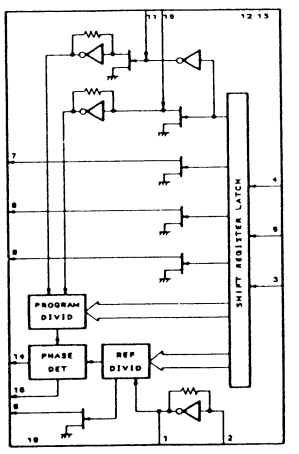
*2

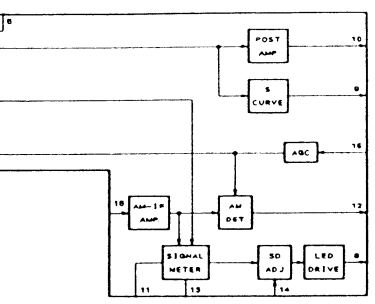
	R251 R252	R281 R282	R287 R288	R457 R458	R459 R460	R461 R462	C245 C474	C249 C250	C456 C457
HE, HB ONLY	1. 5K	330 (1/8W)	1K	820 (1/8W)	1. 3K (1/8W)	360 (1/8W)	1000 /10	4. 7 /50	4. 7 /35
HEWZ, ONLY	2. 2K	330 (1/4W)	12K	820 (1/4W)	1. 3K (1/4W)	360 (1/4W)	1000 /16	4. 7 /25	4. 7 /25

IC452 (LA3607)

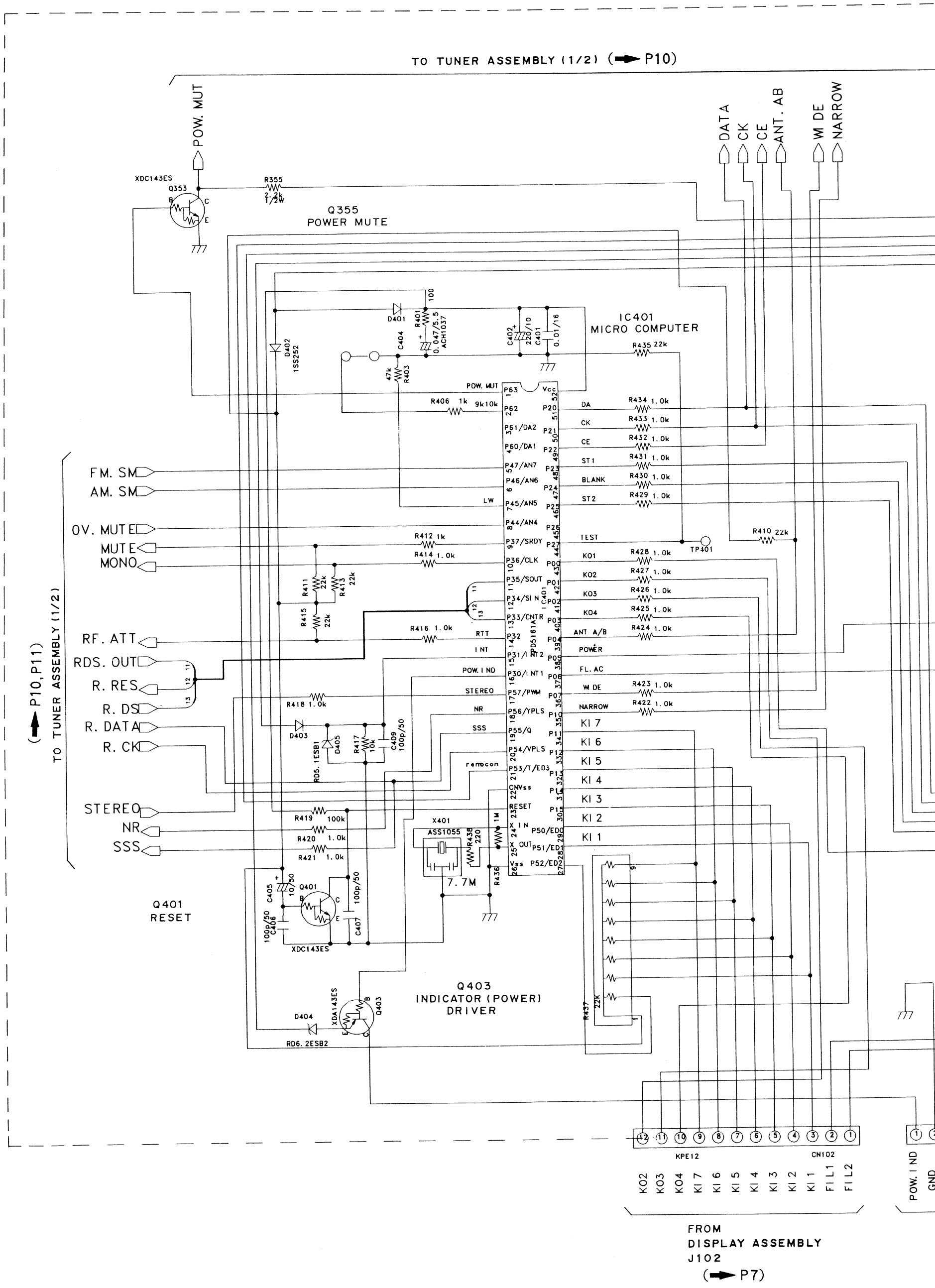


IC321 (LM7001)





3.3 TUNER ASSEMBLY (2/2) (AWZ3635) AND POWER ASSEMBLY (AWZ3639)



BLY (AWZ3639)

TO TUNER ASSEMBLY (1/2) (➡ P10)

DATA
CK
CE
ANT. AB
WIDE
NARROW
+13V
+5.6V
GND

Q355
OWER MUTE

D401
R401 100
0.047/5.5 ACH1037
C404
47k R403
C402 220/10
C401 0.01/16

IC401
MICRO COMPUTER

R435 22k
POW. MUT
R406 1k 9k10k
LW
R412 1k
R414 1.0k
R413 22k
R416 1.0k
RTT
INT
POW. IND
STEREO
NR
SSS
remocon
D405
R417 10k
C409 100p/50
C407 100p/50
X401
ASS1055
R438 220
1M
7.7M
R436
R410 22k
TP401
C401

P63 Vcc
P62
P61/DA2
P60/DA1
P47/AN7
P46/AN6
P45/AN5
P44/AN4
P37/SRDY
P36/CLK
P35/SOUT
P34/SIN
P33/CNTR
P32
P31/INT2
P30/INT1
P57/PWM
P56/YPLS
P55/Q
P54/VPLS
P53/T/ED3
CNVss
RESET
X IN
X OUT
Vss
P50/ED0
P51/ED1
P52/ED2
P20
P21
P22
P23
P24
P25
P26
P27
P00
P01
P02
P03
P04
P05
P06
P07
P10
P11
P12
P13
P14
P15

DA R434 1.0k
CK R433 1.0k
CE R432 1.0k
ST1 R431 1.0k
BLANK R430 1.0k
ST2 R429 1.0k
TEST
KO1 R428 1.0k
KO2 R427 1.0k
KO3 R426 1.0k
KO4 R425 1.0k
ANT A/B R424 1.0k
POWER
FL. AC
WIDE R423 1.0k
NARROW R422 1.0k
KI 7
KI 6
KI 5
KI 4
KI 3
KI 2
KI 1

R437 22K

Q403
INDICATOR (POWER)
DRIVER
XDA143ES
Q403

D361
1SS252
Q355
XDA143ES
R357 4.7k

Q355
SWITCHING
(FL POWER)

IC351,IC352
REGULATOR

R356 10k
R384 47K
Q351,Q352
SWITCHING
IC351
VOUT VIN
NJM78M56FAS
R354 18 1/4W
C361 47/10
R352 22k
2SA1529
Q351
Q352
XDC143ES
IC352
VOUT VIN
MC7812CT
S5566
D351
D352
D354
D353
FU1
AEK-504
T400mA
C351 ACG-009 0.047
C352 2200/50
C354 33/16
D363
C360 100/16
RD10ESB
D359
C359 47/25
R353 470 1/2W
C358 470/25
C357 0.047
D357
S5566
D358
S5566
C355 220/10
D362
RD2.7ESB
Q354
2SB560
Q354
REGULATOR
AC 3.8V
J103

Q356-Q359
SWITCHING
(FL POWER)
R362 4.7k
R363 4.7k
R364 4.7k
R365 4.7k
2SC2878

IC351
(NJM78M56FAS)

Pin No.	Volts
V IN	22.0
V OUT	5.6

IC352
(MC7812CT)

Pin No.	Volts
V IN	23.5
V OUT	12.6

KPE12 CN102
KO2 KO3 KO4 KI 7 KI 6 KI 5 KI 4 KI 3 KI 2 KI 1 FIL1 FIL2

FROM
DISPLAY ASSEMBLY
J102
(➡ P7)

CN101 KPE10
POW. IND GND CK DATA ST2 ST1 BLANK -VFL +5.6V KO1

FROM
DISPLY ASSEMBLY
J101
(➡ P7)

TUNER ASSEMBLY (2/2)
(AWZ3635 ; HEWZ)
(AWZ3636 ; HE, HB)

+13V
+5.6V
GND

IC351, IC352
REGULATOR

R356 10k
R384 47K

Q351, Q352
SWITCHING

IC351
VOUT VIN
NJM78M56FAS
R354 18 1/4W
C361+ 47/10
R352 22k

IC352
VOUT VIN
MC7812CT

2SA1529
Q351
Q352
XDC143ES

S5566
D351
D352
D354
D353
D363
FU1
AEK-504
T400mA
C351 ACG-009 0.047μ
C352+ 2200/50
C354+ 33/16
C360+ 100/16
D359 RD10ESB
C359+ 47/25
R353 470 1/2W
C358+ 470/25
C357 0.047
S5566
D357
C355+ 220/10
D358 S5566
D361 1SS252
Q355 2A143ES
D362 RD2.7ESB
Q354 2SB560
R357 4.7k

POWER ASSEMBLY
HEWZ ONLY
0.01/AC400
ACG1002
ΔC353
L351 ATF-183
ATT1154 PT351V
0V
15V
230V
240V
HE, HB ONLY
J103
A1
A4
A3
A2
240V
220-230V
AC POWER CORD
AC 220-230/240V 50/60Hz
ADG1085 ; HB, HE
ADG1010 ; HEWZ

(AWZ3639 ; HEWZ)
(AWZ3640 ; HE, HB)

AC 3.8V

Q354
REGULATOR

Q355
SWITCHING
(FL POWER)

Q356 – Q359
SWITCHING
(FL POWER)

R358 1.0 1/4W
Q356 2SC2878
R362 4.7k
R359 1.0 1/4W
Q357 2SC2878
R363 4.7k
R360 1.0 1/4W
Q358 2SC2878
R364 4.7k
R361 1.0 1/4W
Q359 2SC2878
R365 4.7k

Line Voltage Selection

Line voltage can be changed with the following steps.
1. Disconnect the AC power cord.
2. Remove the Bonnet case.
3. Change the connection of the power transformer lead wire.
4. Stick the line voltage label on the rear panel.

Port NO.	Description	
AXX-193	220V label	——— 220-230V
AXX-192	240V label	- - - - - - - - 240V

IC351
(NJM78M56FAS)

Pin No.	Volts
V IN	22.0
V OUT	5.6

C405

Terminal	Volts
+	5.0
—	0

Q354
(2SB560)

Terminal	Volts
Emitter	−9.1
Collector	−10.5

IC352
(MC7812CT)

Pin No.	Volts
V IN	23.5
V OUT	12.6

3 4 5 6 7 8 9 10
KPE10
CK DATA ST2 ST1 BLANK −VFL +5.6V KO1

ROM
ISPLY ASSEMBLY
101
(➡ P7)

4. P.C. BOARDS CONNECTION DIAGRAM

NOTE

1. This P.C.B connection diagram is viewed from the parts mounted side.
2. The parts which have been mounted on the board can be replaced with those shown with the corresponding wiring symbols listed in the following Table.

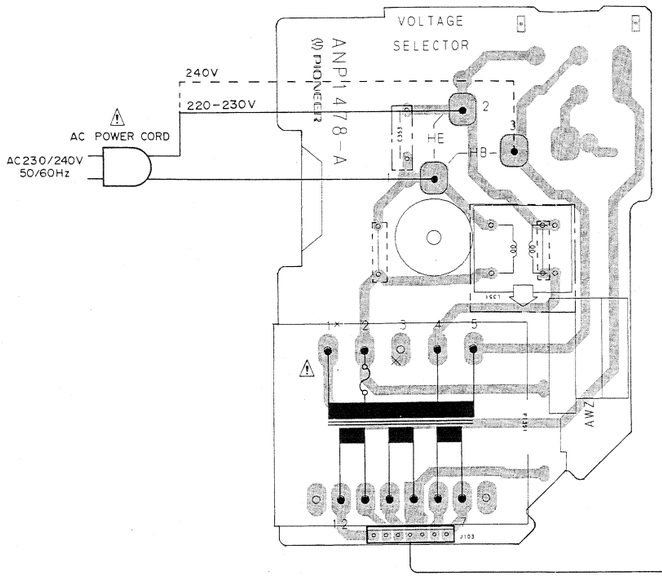
P.C.B. pattern diagram indication	Corresponding part symbol	Part Name
Q504 E C B	E C B or E C B	Transistor
Q215 C B E	C B E or C B E	Radiator type transistor
D203	D203	Diode
R237	R237	Resistor
C513	+	Capacitor (Polarity)
C518		Capacitor (Non-polarity)

Others

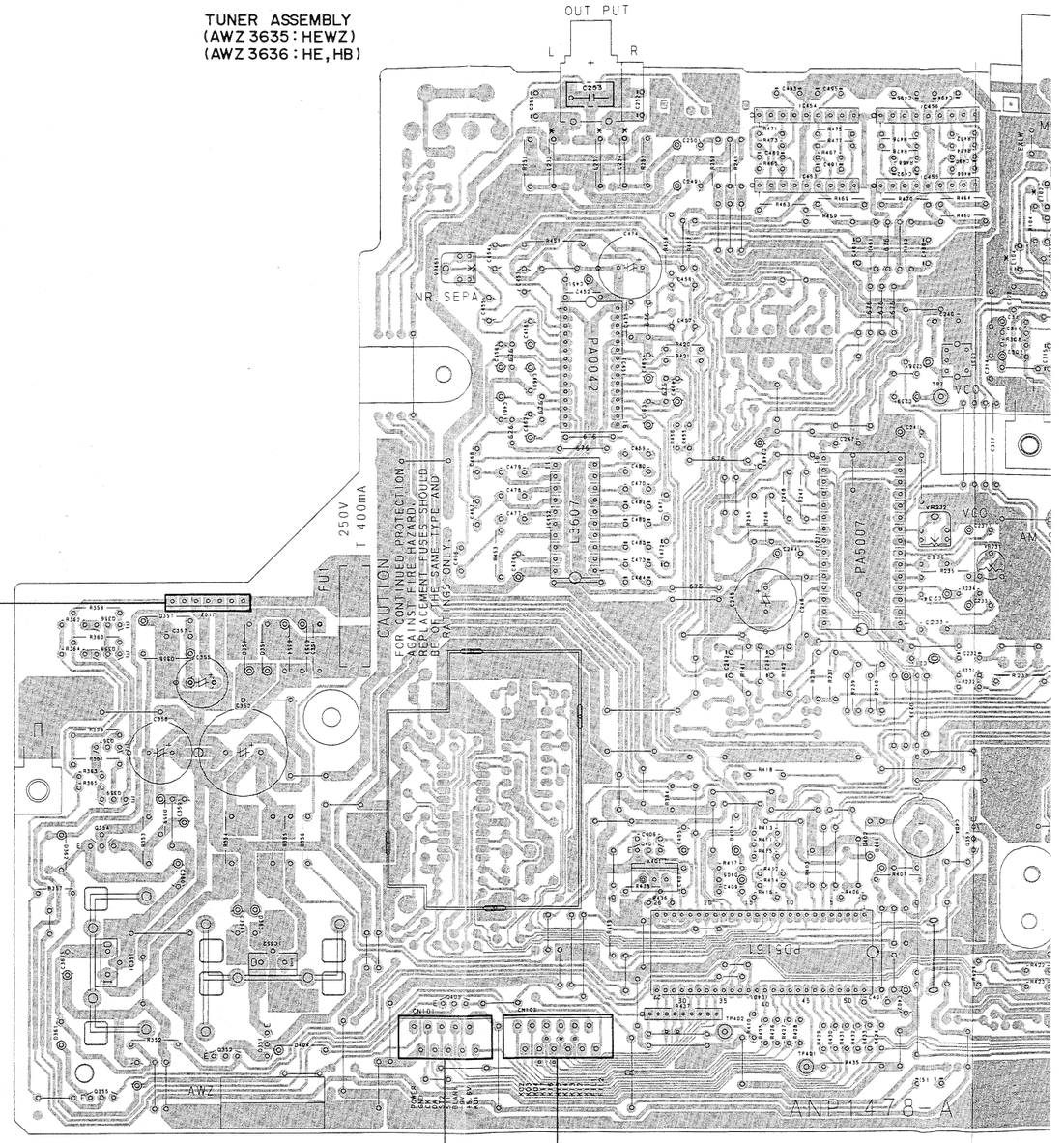
P.C.B. pattern diagram indication	Part Name
IC	IC
S	Switch
RY	Relay
L	Coil
F	Filter
VR	Variable resistor or Semi-fixed resistor

3. The capacitor terminal marked with ⓒ (double circles) shows negative terminal.
4. The diode terminal marked with ⓒ (double circles) shows cathode side.
5. The transistor terminal to which E is affixed shows the emitter.

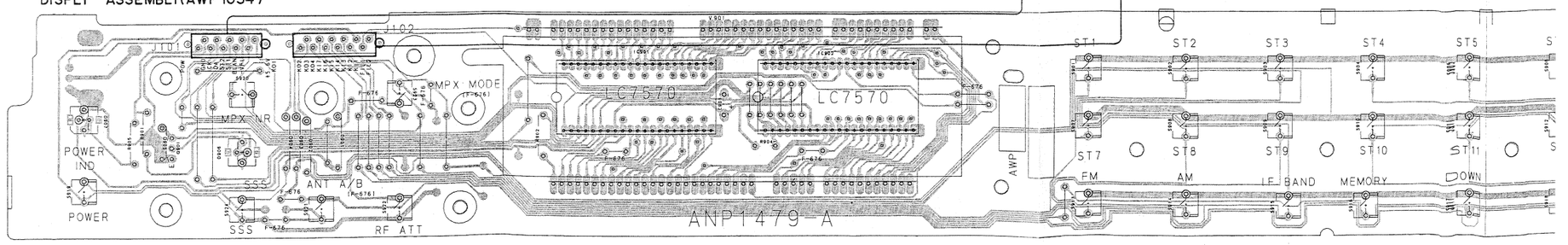
POWER ASSEMBLY
(AWZ3639 : HEWZ)
(AWZ3640 : HE,HB)



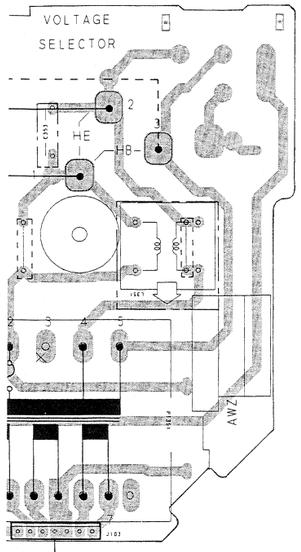
TUNER ASSEMBLY
(AWZ3635 : HEWZ)
(AWZ3636 : HE,HB)



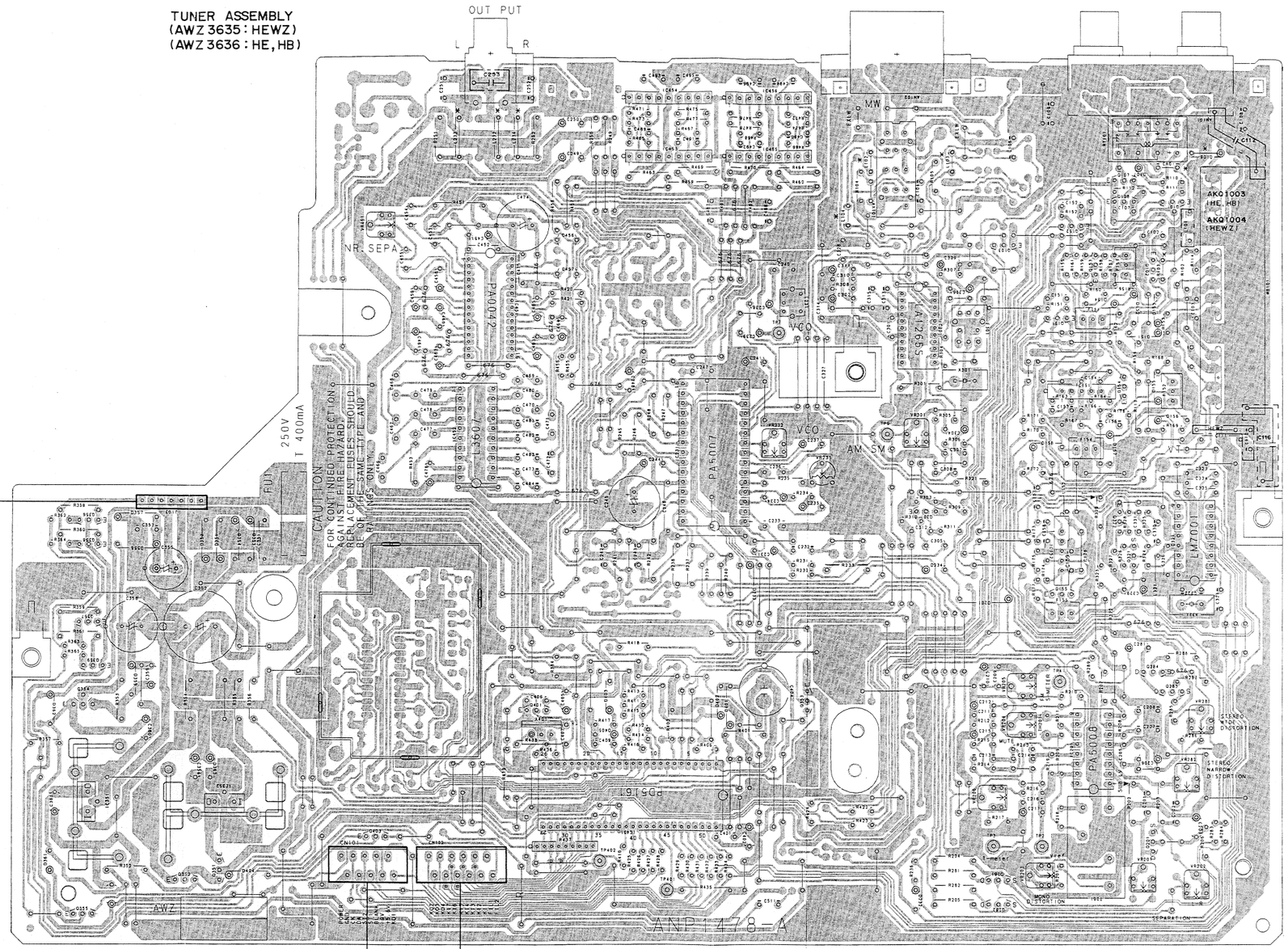
DISPLY ASSEMBLY(AWP1034)

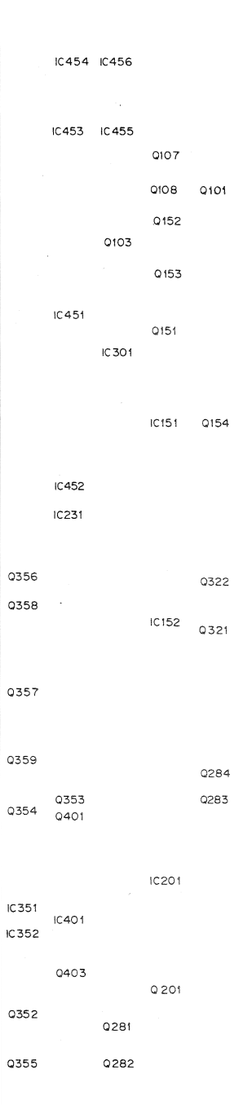


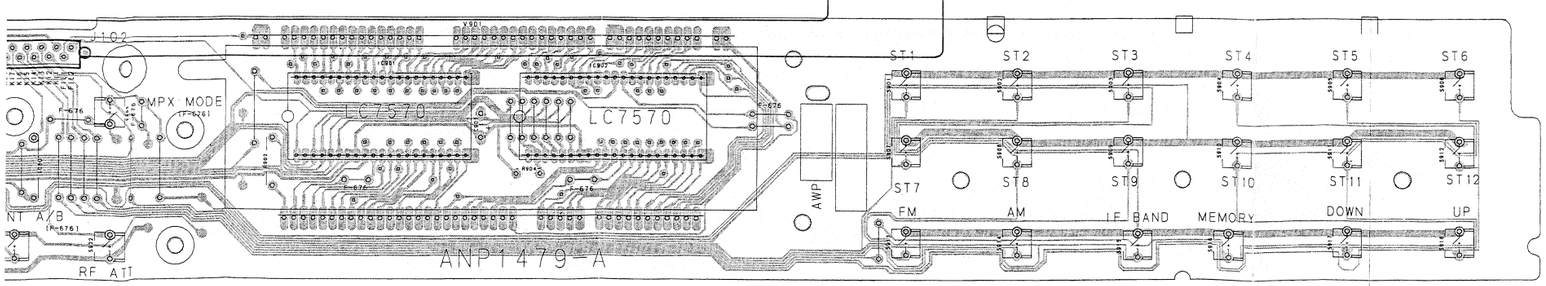
SSEMBLY
: HEWZ)
: HE,HB)



TUNER ASSEMBLY
(AWZ3635 : HEWZ)
(AWZ3636 : HE, HB)







NOTE

: HEWZ ONLY

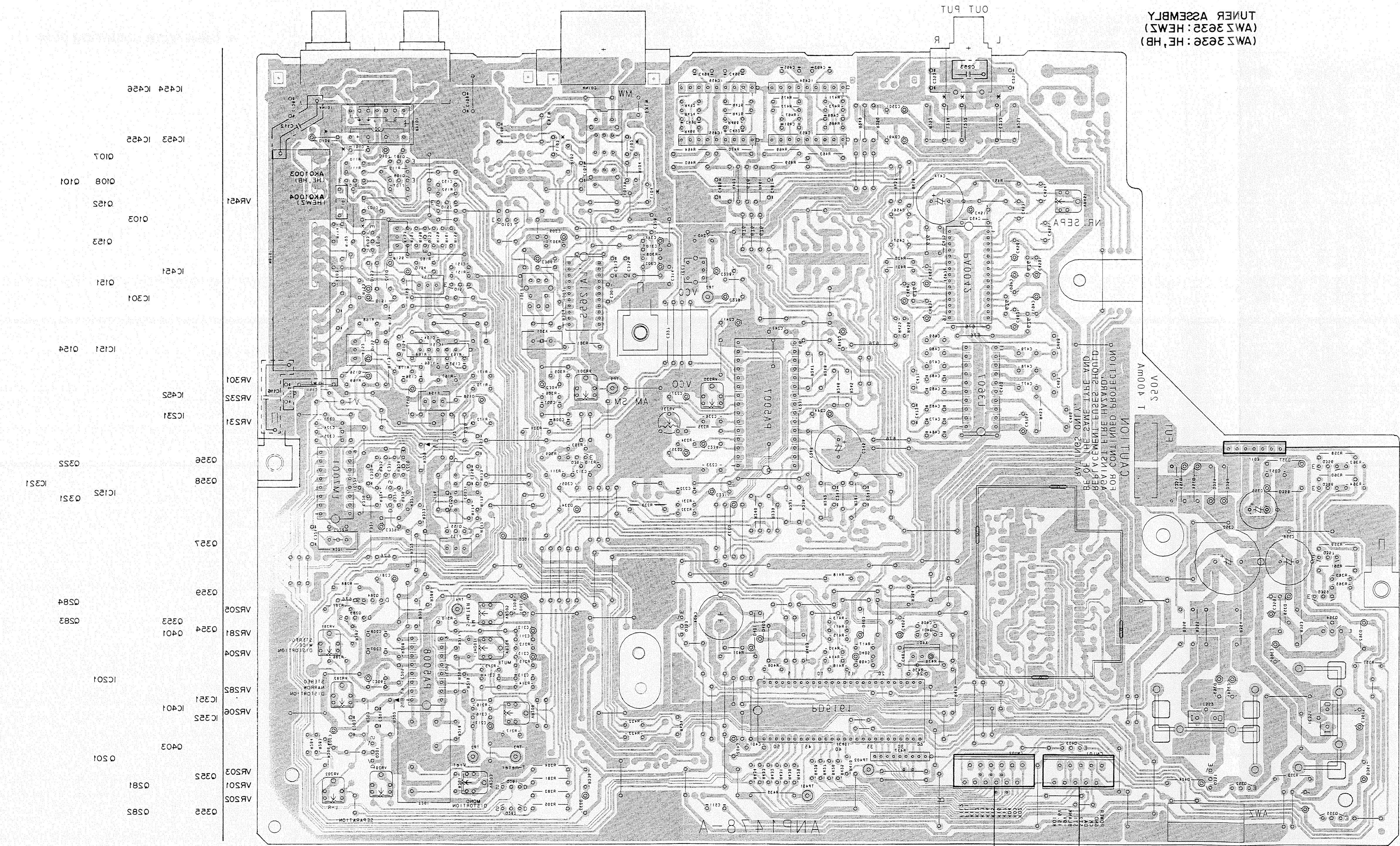
: HE, HB ONLY

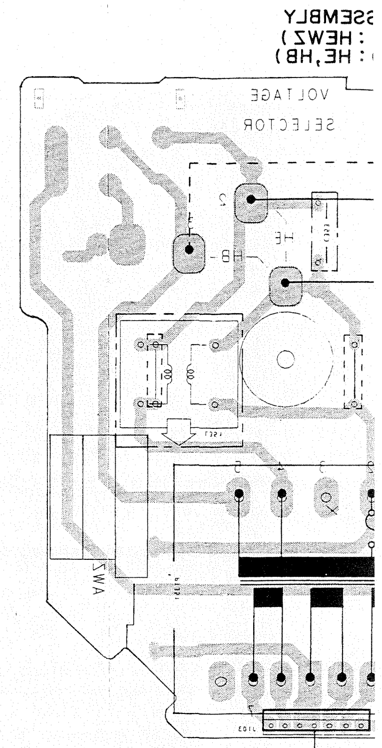
*

	L102 L103 L104	L232 L233 L234	D101 D103 D105	D108	C101	R103
HE, HB ONLY	JUMPER	JUMPER	UESD	JUMPER	JUMPER	JUMPER
HEWZ, ONLY	USED	USED	JUMPER	USED	USED	USED

9 8 7 6 5 4 3

A





B

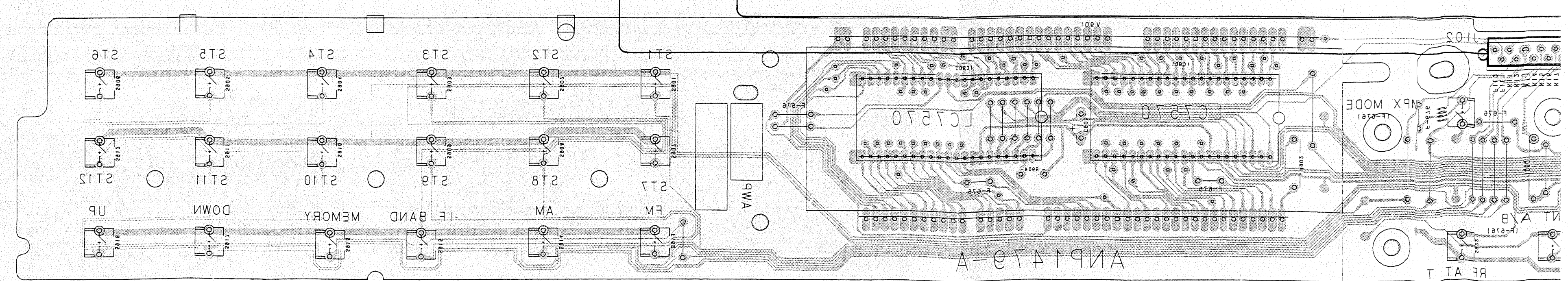
C

NOTE

: HEWZ ONLY

: HE,HB ONLY

*	L102 L103 L104	L232 L233 L234	D101 D103 D105	D108	C101	R103
HE, HB ONLY	JUMPER	JUMPER	USED	JUMPER	JUMPER	JUMPER
HEWZ, ONLY	USED	USED	JUMPER	USED	USED	USED

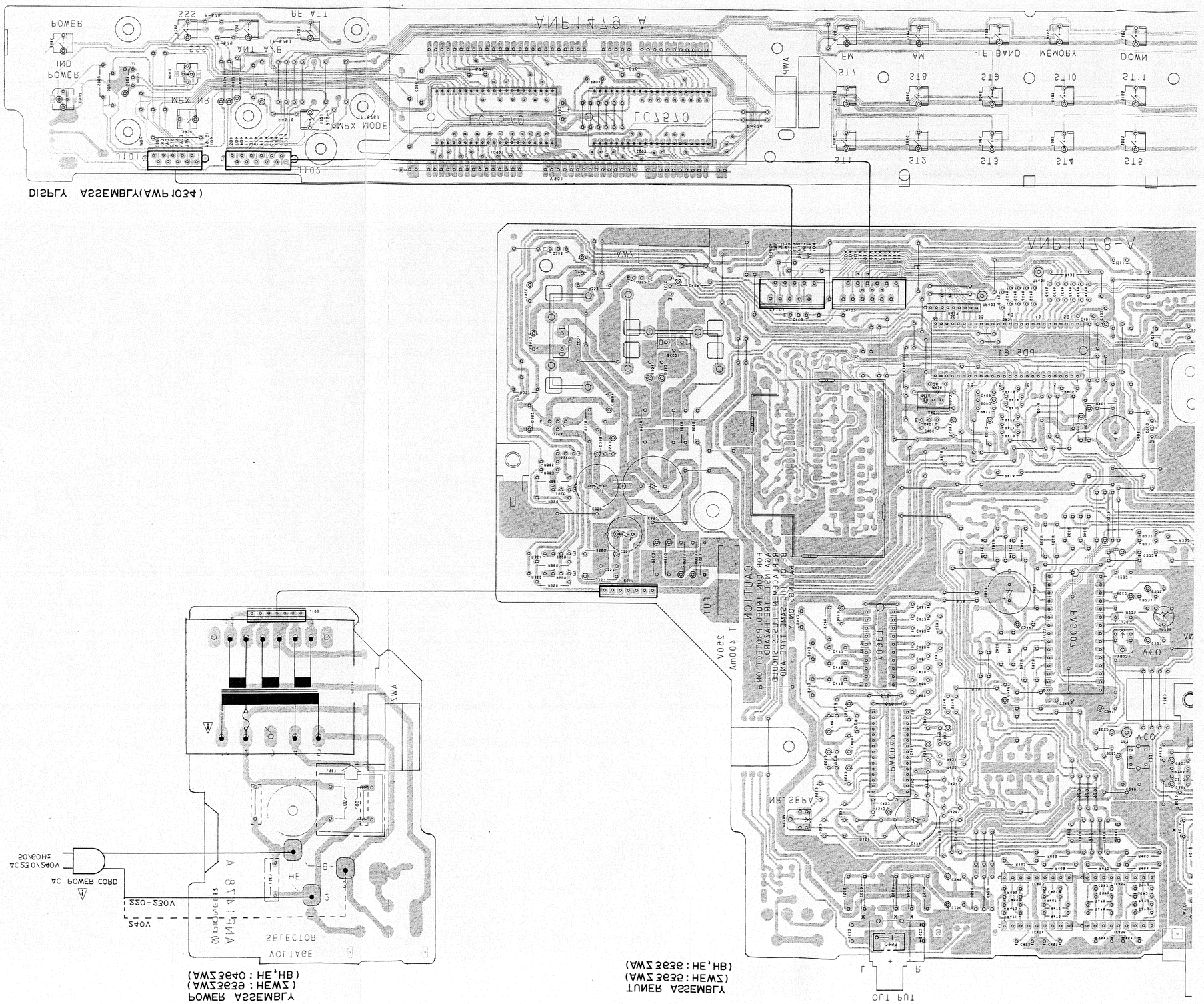


D

9 8 7 6 5 4 3

4. P.C. BOARDS CONNECTION DIAGRAM

• View from soldering side



5. P.C.B's PARTS LIST

NOTES:

- Parts without part number cannot be supplied.
- Parts marked by "⊙" are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.
- The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
- When ordering resistors, first convert resistance values into code form as shown in the following examples.

Ex.1 When there are 2 effective digits (any digit apart from 0), such as 560 ohm and 47k ohm (tolerance is shown by J=5%, and K=10%)

560 Ω → 56 × 10^1 → 561 ····· RD1/4PS 5 6 1 J
47k Ω → 47 × 10^3 → 473 ····· RD1/4PS 4 7 3 J
0.5 Ω → 0R5 ····· RN2H 0 R 5 K
1 Ω → 010 ····· RS1P 0 1 0 K

Ex.2 When there are 3 effective digits (such as in high precision metal film resistors).

5.62k Ω → 562 × 10^1 → 5621 ····· RN1/4SR 5 6 2 1 F

Mark	No.	Description	Part No.
		⊙ TUNER ASSEMBLY(AWZ3635)	
		SEMICONDUCTORS	
	IC151, 152	AMPLIFIER IC	TA7060AP
	IC201	FM IC	PA5008
	IC231	MPX IC	PA5007
	IC301	AM/FM IC	LA1265S
	IC321	PLL IC	LM7001
	IC351	REGULATOR IC	NJM78M56FAS
	IC352	REGULATOR IC	MC7812CT
	IC401		PD5161A
	IC451	FM-NR	PA0042
	IC452	GEQ IC	LA3607
	IC453-456	OP-AMP IC	NJM4558S-X
	Q101	TRANSISTOR	XDA143ES
	Q102	TRANSISTOR	2SC1740S
	Q103	TRANSISTOR	XDA143ES
	Q107	TRANSISTOR	2SC2705
	Q108	TRANSISTOR	2SC2603
	Q151, 152	TRANSISTOR	XDA143ES
	Q153-155	TRANSISTOR	2SC2668
	Q201	N-FET	2SK246
	Q281, 282	N-FET	2SK117
	Q283, 284	N-FET	2SK246
	Q301	TRANSISTOR	2SC1740S
	Q321	N-FET	2SK246
	Q322	TRANSISTOR	2SC1740SLN
	Q351	TRANSISTOR	2SA1529
	Q352, 353	TRANSISTOR	XDC143ES
	Q354	TRANSISTOR	2SB560
	Q355	TRANSISTOR	XDA143ES
	Q356-359	TRANSISTOR	2SC2878
	Q401	TRANSISTOR	XDC143ES
	Q403	TRANSISTOR	XDA143ES
	D107	DIODE	1SS252
	D108	DIODE	1SV156
	D151-158	DIODE	1SS85
	D201	DIODE	1SS252
	D232-234	DIODE	1SS252
⚠	D351-354	DIODE	S5566
⚠	D357, 358	DIODE	S5566
	D359	ZENER DIODE	RD10ESB
	D361	DIODE	1SS252
	D362	ZENER DIODE	RD2.7ESB
	D363	DIODE	1SS252
	D401-403	DIODE	1SS252
	D404	ZENER DIODE	RD6.2ESB2
	D405	ZENER DIODE	RD5.1ESB1
	TH201	THERMISTOR	TH103-2
		RELAYS	
	RY101	RELAY	ASR-087
		COILS/TRANSFORMERS	
	L101	AXIAL INDUCTOR	LAU2R2M
	L102-104	AXIAL INDUCTOR	LAU470K
	L152	AXIAL INDUCTOR	LAU2R2M
	L231	COIL	ATM103
	L232	AXIAL INDUCTOR	LAU01M
	L233, 234	AXIAL INDUCTOR	LAU10K
	L321	AXIAL INDUCTOR	LAU2R2M
	T201	IF TRANSFORMER	ATE-068
	F151	CERAMIC FILTER	ATF-109
	F152	CERAMIC FILTER	ATF-107
	F153, 154	CERAMIC FILTER	ATF107 9
	F155	CERAMIC FILTER	ATF109 4
	F301	CERAMIC FILTER	ATF101 2
		CAPACITORS	
	C101	CERAMIC CAPACITOR	CKDYX103M25
	C102, 103	CERAMIC CAPACITOR	CKPUY103M16
	C104	CERAMIC CAPACITOR	CKDYF473Z50
	C106	CERAMIC CAPACITOR	CKDYF223Z50
	C107	CERAMIC CAPACITOR	CKPUY103M16
	C108-110	CERAMIC CAPACITOR	CKDYX103M25
	C111	CERAMIC CAPACITOR	CKPUY102K50
	C112	CERAMIC CAPACITOR	CKDYX103M25
	C151, 152	CERAMIC CAPACITOR	CKDYF223Z50

Mark	No.	Description	Part No.
	C153	CERAMIC CAPACITOR	CKDYX473M25
	C154	CERAMIC CAPACITOR	CKPUYY103M16
	C156, 157	CERAMIC CAPACITOR	CKDYX103M25
	C158	CERAMIC CAPACITOR	CKDYX473M25
	C159	CERAMIC CAPACITOR	CKPUYY103M16
	C201	CERAMIC CAPACITOR	CCMCH150J50
	C202	CERAMIC CAPACITOR	CCMCH330J50
	C203	ELECTR. CAPACITOR	CEAS010M50
	C205	CERAMIC CAPACITOR	CKPUYY103M16
	C206	ELECTR. CAPACITOR	CEEA101M16
	C207, 208	CERAMIC CAPACITOR	CKDYX473M25
	C209	CERAMIC CAPACITOR	CKPUYY103M16
	C210	ELECTR. CAPACITOR	CEAS010M50
	C211	CERAMIC CAPACITOR	CKPUYY103M16
	C212	ELECTR. CAPACITOR	CEAS010M50
	C213, 214	CERAMIC CAPACITOR	CKMYB181K50
	C215	ELECTR. CAPACITOR	CEAS3R3M50
	C216	CERAMIC CAPACITOR	CKPUYY103M16
	C217	ELECTR. CAPACITOR	CEEA101M16
	C231	ELECTR. CAPACITOR	CEAS220M25
	C232	AUDIO FILM CAPACITOR	CFTXA473J50
	C233	CERAMIC CAPACITOR	CKDYB152K50
	C234	ELECTR. CAPACITOR	CEAS1R5M50
	C235	ELECTR. CAPACITOR	CEAS100M50
	C236	CKA (390P/50V)	ACG-023
	C237	ELECTR. CAPACITOR	CEAS6R8M50
	C238, 239	ELECTR. CAPACITOR	CEAS100M50
	C240	PL. STYRENE CAPACITOR	CQSA682J50
	C241	ELECTR. CAPACITOR	CEAS220M25
	C242, 243	MYLOR FILM CAPACITOR	CQMA152J50
	C244	ELECTR. CAPACITOR	CEAS470M10
	C245	ELECTR. CAPACITOR	CEEA102M16
	C246, 247	CERAMIC CAPACITOR	CKPUYY103M16
	C248	ELECTR. CAPACITOR	CEEA221M16
	C249, 250	ELECTR. CAPACITOR	CEEA4R7M25
	C251, 252	CERAMIC CAPACITOR	CKDYB472K50
	C253	CERAMIC CAPACITOR	CKDYX103M25
	C281	ELECTR. CAPACITOR	CEAS010M50
	C301	CERAMIC CAPACITOR	CKPUYY103M16
	C302	ELECTR. CAPACITOR	CEAS330M16
	C304	ELECTR. CAPACITOR	CEAS100M50
	C305	ELECTR. CAPACITOR	CEANP4R7M35
	C306	ELECTR. CAPACITOR	CEAS4R7M50
	C307	CERAMIC CAPACITOR	CKDYB222K50
	C308	CERAMIC CAPACITOR	CKDYX473M25
	C309	CERAMIC CAPACITOR	CKDYF223Z50
	C310	CERAMIC CAPACITOR	CKPUYY103M16
	C311	ELECTR. CAPACITOR	CEAS470M10
	C312	CERAMIC CAPACITOR	CKPUYY103M16
	C313	CERAMIC CAPACITOR	CKDYF223Z50
	C314	CERAMIC CAPACITOR	CKPUYY103M16
	C315	CERAMIC CAPACITOR	CKDYF223Z50
	C321, 322	CERAMIC CAPACITOR	CCMCH150J50
	C323-325	AXIAL CERAMIC C.	CCPUSL470J50
	C326, 327	CERAMIC CAPACITOR	CKPUYY103M16
	C328	AXIAL CERAMIC C.	CCPUSL470J50
	C329	ELECTR. CAPACITOR	CEAS330M16
	C330	AUDIO FILM CAPACITOR	CFTXA224J50
	C331	CERAMIC CAPACITOR	CKPUYY103M16
⚠	C351	CAPACITOR (CERAMIC)	ACG-009
	C352	ELECTR. CAPACITOR	CEAS222M50
	C354	ELECTR. CAPACITOR	CEAS330M16
	C355	ELECTR. CAPACITOR	CEAS221M10
	C357	CERAMIC CAPACITOR	CKDYF473Z50
	C358	ELECTR. CAPACITOR	CEAS471M25
	C359	ELECTR. CAPACITOR	CEAS470M25
	C360	ELECTR. CAPACITOR	CEAS101M16
	C361	ELECTR. CAPACITOR	CEAS470M10
	C401	CERAMIC CAPACITOR	CKPUYY103M16
	C402	ELECTR. CAPACITOR	CEAS221M10
	C404	CEA (47000/5.5V)	ACH1037
	C405	ELECTR. CAPACITOR	CEAS100M50
	C406, 407	CERAMIC CAPACITOR	CKPUYB101K50
	C409	CERAMIC CAPACITOR	CKPUYB101K50
	C451	ELECTR. CAPACITOR	CEEA221M16
	C452	CERAMIC CAPACITOR	CKPUYY103M16
	C453, 454	ELECTR. CAPACITOR	CEEANP010M50
	C455	ELECTR. CAPACITOR	CEANP100M25
	C456, 457	ELECTR. CAPACITOR	CEEANP4R7M25
	C458	ELECTR. CAPACITOR	CEAS4R7M50
	C459	ELECTR. CAPACITOR	CEAS2R2M50
	C460	ELECTR. CAPACITOR	CEAS1R5M50
	C461	ELECTR. CAPACITOR	CEAS010M50
	C462	ELECTR. CAPACITOR	CEASR68M50
	C463	ELECTR. CAPACITOR	CEASR47M50
	C464	ELECTR. CAPACITOR	CEASR22M50
	C465	ELECTR. CAPACITOR	CEASR15M50
	C466	CERAMIC CAPACITOR	CKDYX104M25
	C467	CERAMIC CAPACITOR	CKDYX823M25
	C468	CERAMIC CAPACITOR	CKDYX563M25
	C469	CERAMIC CAPACITOR	CKDYX333M25
	C470	CERAMIC CAPACITOR	CKDYX223M25
	C471	CERAMIC CAPACITOR	CKDYX123M25
	C472	CERAMIC CAPACITOR	CKDYB822K50
	C473	CERAMIC CAPACITOR	CKDYB472K50
	C474	ELECTR. CAPACITOR	CEEA102M16
	C475	CERAMIC CAPACITOR	CKPUYY103M16
	C476	ELECTR. CAPACITOR	CEAS220M25
	C477	CERAMIC CAPACITOR	CKDYX563M25
	C478	CERAMIC CAPACITOR	CKDYX273M25
	C479	CERAMIC CAPACITOR	CKDYX153M25
	C480	CERAMIC CAPACITOR	CKDYX103M25
	C481	CERAMIC CAPACITOR	CKDYB562K50
	C482	CERAMIC CAPACITOR	CKDYB392K50
	C483	CERAMIC CAPACITOR	CKDYB222K50
	C484	CERAMIC CAPACITOR	CKDYB152K50
	C487-496	MYLOR FILM CAPACITOR	CQMA103J50

Mark	No.	Description	Part No.
RESISTORS			
	R101	CARBONFILM RESISTOR	RD1/8PM□□□J
	R102	CARBONFILM RESISTOR	RD1/2PM□□□J
	R103-105	CARBONFILM RESISTOR	RD1/8PM□□□J
	R110-113	CARBONFILM RESISTOR	RD1/8PM□□□J
	R151-164	CARBONFILM RESISTOR	RD1/8PM□□□J
	R166-175	CARBONFILM RESISTOR	RD1/8PM□□□J
	R177, 178	CARBONFILM RESISTOR	RD1/8PM□□□J
	R201	CARBONFILM RESISTOR	RD1/8PM□□□J
	R202-205	CARBONFILM RESISTOR	RDR1/4PM□□□J
	R206-219	CARBONFILM RESISTOR	RD1/8PM□□□J
	R231-234	CARBONFILM RESISTOR	RD1/8PM□□□J
	R235	METALFILM RESISTOR	RN1/4PQ□□□□F
	R236	CARBONFILM RESISTOR	RD1/8PM□□□J
	R237, 238	CARBONFILM RESISTOR	RDR1/4PM□□□J
	R239, 240	CARBONFILM RESISTOR	RD1/8PM□□□J
	R241, 242	CARBONFILM RESISTOR	RDR1/4PM□□□J
	R245-252	CARBONFILM RESISTOR	RDR1/4PM□□□J
	R281, 282	CARBONFILM RESISTOR	RDR1/4PM□□□J
	R283-289	CARBONFILM RESISTOR	RD1/8PM□□□J
	R301	CARBONFILM RESISTOR	RD1/8PM□□□J
	R303-307	CARBONFILM RESISTOR	RD1/8PM□□□J
	R309-311	CARBONFILM RESISTOR	RD1/8PM□□□J
	R321-329	CARBONFILM RESISTOR	RD1/8PM□□□J
	R352	CARBONFILM RESISTOR	RD1/8PM□□□J
	R353	CARBONFILM RESISTOR	RD1/2PM□□□J
⚠	R354	FUSIBLE RESISTOR	RFA1/4PS□□□J
	R355	CARBONFILM RESISTOR	RD1/2PM□□□J
	R356, 357	CARBONFILM RESISTOR	RD1/8PM□□□J
	R358-361	CARBONFILM RESISTOR	RD1/4PM□□□J
	R362-365	CARBONFILM RESISTOR	RD1/8PM□□□J
	R384	CARBONFILM RESISTOR	RD1/8PM□□□J
	R401	CARBONFILM RESISTOR	RD1/8PM□□□J
	R403	CARBONFILM RESISTOR	RD1/8PM□□□J
	R406	CARBONFILM RESISTOR	RD1/8PM□□□J
	R410-436	CARBONFILM RESISTOR	RD1/8PM□□□J
	R437	RESISTOR ARRAY(22K)	RA8T□□□J
	R438	CARBONFILM RESISTOR	RD1/8PM□□□J
	R451	CARBONFILM RESISTOR	RD1/8PM□□□J
	R453	CARBONFILM RESISTOR	RD1/8PM□□□J
	R455, 456	CARBONFILM RESISTOR	RD1/8PM□□□J
	R457-462	CARBONFILM RESISTOR	RDR1/4PM□□□J
	R463-478	CARBONFILM RESISTOR	RD1/8PM□□□J
	VR201, 202	VR	ACP1042
	VR203	VR	ACP1040
	VR204	VR	ACP1043
	VR205	VR	ACP1046
	VR206	VR	ACP1038
	VR231	VR	VRTS6VS222
	VR232	VR	ACP1044
	VR281	VR	ACP1044
	VR282	VR	ACP1043
	VR301	VR	ACP1043
	VR451	VR	ACP1045

Mark	No.	Description	Part No.
OTHERS			
		SCREW	ABA-298
		PIN JACK(2P)	AKB1039
		TERMINAL 2-P	AKE-060
		SOCKET	AKX1034
		FRONT END MODULE ASSEMBLY	AXQ1004
		AM RF TUNING BLOCK	AXX1011
	CN101	CONNECTOR(10P)	KPE10
	CN102	CONNECTOR(12P)	KPE12
	X301	CERAMIC RESONATOR	ATF1027
	X321	CRYSTAL RESONATOR	ASS1005
	X401	CERAMIC RESONATOR	ASS1055

⊙ POWER ASSEMBLY(AWZ3639)

Mark	No.	Description	Part No.
COILS/TRANSFORMERS			
⚠	L351	FILTER	ATF-163
⚠	T351	POWER TRANSFORMER	ATT1154
CAPACITORS			
⚠	C353	CKA (0.01/AC400V)	ACG1002

DISPLAY ASSEMBLY (AWP1034)

Mark	No.	Description	Part No.
SEMICONDUCTORS			
	IC901, 902	FL STATIC DRIVER IC	LC7570
	Q901	TRANSISTOR	DTC143ES
	D901-905	DIODE	1SS252
	D906, 907	LED	AEL1072
SWITCHES			
	S901-924	SWITCH	ASG1034
CAPACITORS			
	C901	CERAMIC CAPACITOR	CKPUY103M16
RESISTORS			
	R901, 902	CARBONFILM RESISTOR	RD1/8PM□□□J
	R905	CARBONFILM RESISTOR	RD1/8PM□□□J
OTHERS			
	V901	FL TUBE	AAV1095

FRONT END MODULE ASSEMBLY (AXQ1004)

The component parts of Front End Module assembly (AXQ1004) cannot be supplied.

6. ADJUSTMENTS

6.1 FM TUNER ADJUSTMENTS

- Connect as shown in Fig. 6–1.

6.1.1 FM MONO

Step	Adjustment name	FM SG (1 kHz ± 75 kHz dev.)			FL display, IF BAND etc.	Location	Adjustment
		Frequency	Modulation	Level			
1	T meter adjustment	98 MHz	MONO	60 dB μ	98 MHz NORMAL	T201–B	Adjust so that the voltage between TP2 and TP3 becomes 0 ± 100 mV.
2	MONO distortion adjustment	98 MHz	MONO	60 dB μ	98 MHz NORMAL	T201–A VR203	Adjust so that the distortion becomes minimum.
3	Sub–balance adjustment	98 MHz	MONO	60 dB μ	98 MHz NORMAL	VR206	Adjust so that the AC voltage at IC201 pin 2 becomes minimum.

6.1.2 FM STEREO

Step	Adjustment name	FM SG (1 kHz ± 75 kHz dev.)			FL display, IF BAND etc.	Location	Adjustment
		Frequency	Modulation	Level			
1	VCO adjustment	108 MHz	OFF	60 dB μ	108 MHz	VR231	Adjust so that the output at TP7 becomes 38 kHz ± 100 Hz.
2	Pilot cancel	107 MHz	PILOT ONLY	60 dB μ	107 MHz NORMAL	VR232	Adjust so that the AC voltage at output terminal becomes minimum. (MAX LPF: OFF)
3	STEREO distortion adjustment (NORMAL)	89 MHz	L–ONLY	60 dB μ	89 MHz NORMAL	VR281	Adjust so that the distortion becomes minimum.
4	STEREO distortion adjustment (SUPER NARROW)	89 MHz	L–ONLY	60 dB μ	89 MHz SUPER NARROW	VR282	Adjust so that the distortion becomes minimum.
5	Separation adjustment	89 MHz	R–ONLY	60 dB μ	89 MHz NORMAL	VR202	Adjust so that the separation R → L becomes maximum.
6			L–ONLY	60 dB μ	89 MHz NORMAL	VR201	Adjust so that the separation L → R becomes maximum.
7	Noise reduction adjustment	89 MHz	L–ONLY	60 dB μ	89 MHz NORMAL MPX NR: ON/OFF	VR451	Adjust so that the output level, when ON, becomes $+1\ ^{+0.5}_{-0.1}$ dB when the MPX NR of the main unit is OFF.

Stereo modulation: Main 1 kHz L+R ± 68.25 Hz, Pilot 19 kHz ± 6.75 kHz.

6.1.3 FM ETC

Step	Adjustment name	FM SG (1 kHz ± 75 kHz dev.)			FL display, IF BAND etc.	Location	Adjustment
		Frequency	Modulation	Level			
1	S meter adjustment	99 MHz	MONO	75 dB μ	99 MHz NORMAL	VR205	Adjust so that the voltage between TP4 and GND becomes $4.9^{+0.05}_{-0.1}$ V.
2	Muting level adjustment	99 MHz	MONO	12 dB μ	99 MHz NORMAL	VR204	Adjust so that the muting is released at the input level shown on the left.

6.2 AM TUNER ADJUSTMENTS

- Connect as shown in Fig. 6–2.

Step	Adjustment name	FM SG (400 Hz 30% modulation)			FL display, IF BAND etc.	Location	Adjustment
		Frequency	Modulation	Level			
1	Tracking adjustment * 1	603 kHz	OFF	Low input level	603 kHz	ANT coil of MW block	Adjust so that the voltage between TP9 and GND becomes maximum.
		1395 kHz	OFF	Low input level	1395 kHz	TC101	
2	IFT adjustment * 1	603 kHz	OFF	Low input level	603 kHz	F301	
3	S meter adjustment	1008 kHz	ON	74 dB μV/m	1008 kHz	VR301	Adjust so that the voltage between TP9 and GND becomes 2.5 ± 0.05V.

*1: Adjustment only for HIX1B.

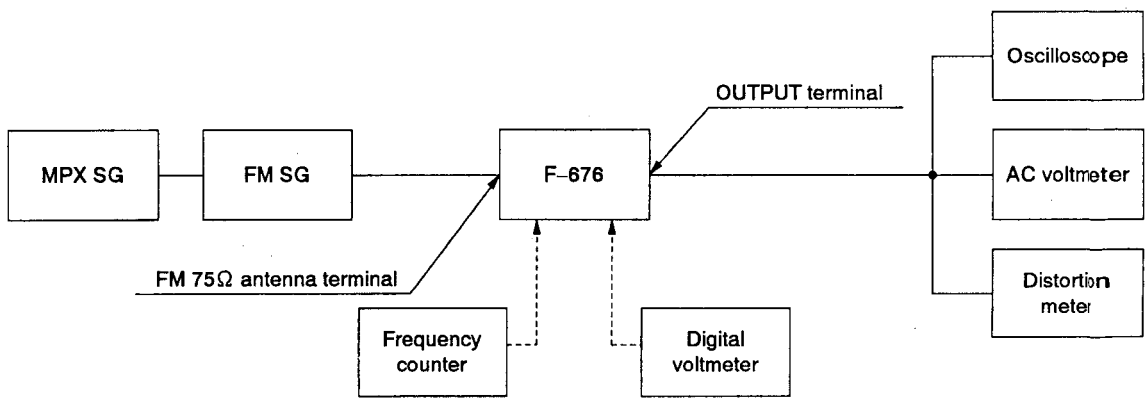


Fig. 6–1 FM Tuner Connection

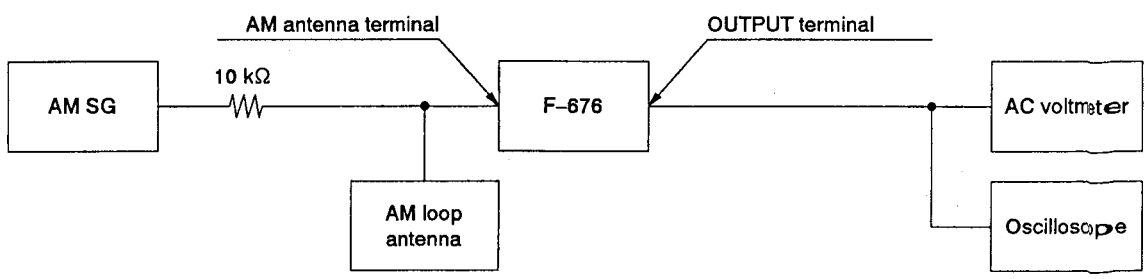


Fig. 6–2 AM Tuner Connection

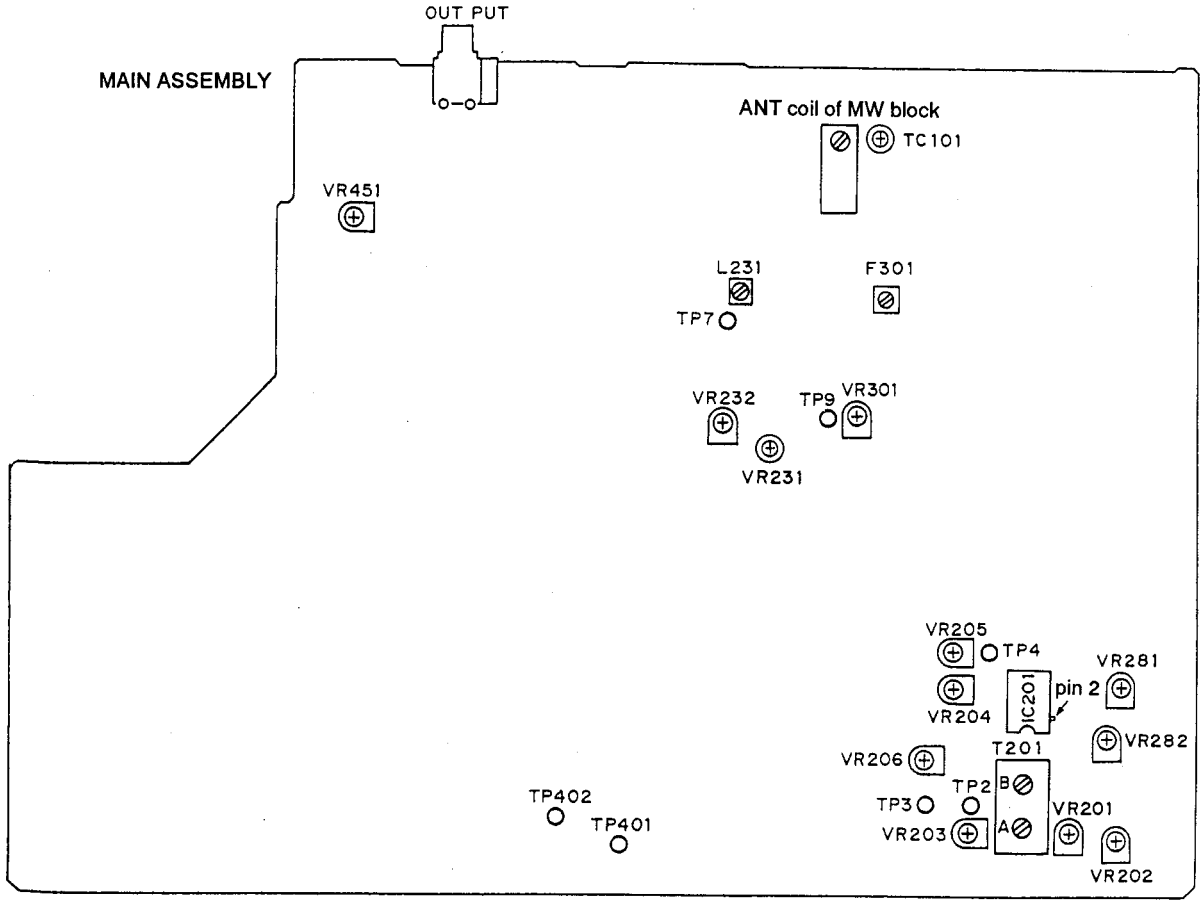


Fig. 6–3 Adjusting Point

6. RÉGLAGES

6.1 RÉGLAGES DU SYNTONISEUR FM

- Raccorder comme indiqué à la figure 6–1.

6.1.1 MONO FM

Etape	Nom du réglage	FM SG (1 kHz ± 75 kHz dev.)			Affichage FL, GAMME FI, etc.	Emplacement	Réglage
		Fréquence	Modulation	Niveau			
1	Appareil de mesure en T	98 MHz	MONO	60 dB µ	98 MHz NORMAL	T201–B	Régler afin que la tension entre TP2 et TP3 soit de 0 ± 100 mV.
2	Réglage de distorsion MONO	98 MHz	MONO	60 dB µ	98 MHz NORMAL	T201–A VR203	Régler afin que la distorsion soit minimale.
3	Réglage de l'équilibre auxiliaire	98 MHz	MONO	60 dB µ	98 MHz NORMAL	VR206	Régler afin que la tension CA à IC201 Broche 2 soit minimale.

6.1.2 STEREO FM

Etape	Nom du réglage	FM SG (1 kHz ± 75 kHz dev.)			Affichage FL, GAMME FI, etc.	Emplacement	Réglage
		Fréquence	Modulation	Niveau			
1	Réglage du VCO	108 MHz	OFF	60 dB µ	108 MHz	VR231	Régler afin que la sortie à TP7 soit de 38 kHz ± 100 Hz
2	Neutralisation pilote	107 MHz	PILOT ONLY	60 dB µ	107 MHz NORMAL	VR232	Régler afin que la tension CA, brones de sortie, soit minimale. (MAX LPF: HORS CIRCUIT)
3	Réglage de distorsion STEREO (NORMAL)	89 MHz	L–ONLY	60 dB µ	89 MHz NORMAL	VR281	Régler afin que la distorsion soit minimale.
4	Réglage de distorsion STEREO (SUPER NARROW)	89 MHz	L–ONLY	60 dB µ	89 MHz SUPER NARROW	VR282	Régler afin que la distorsion soit minimale.
5	Réglage de séparation	89 MHz	R–ONLY	60 dB µ	89 MHz NORMAL	VR202	Régler afin que la séparation D→G soit maximale.
6			L–ONLY	60 dB µ	89 MHz NORMAL	VR201	Régler afin que la séparation G→D soit maximale.
7	Réglage de réduction de bruit	89 MHz	L–ONLY	60 dB µ	89 MHz NORMAL MPX NR: ON/OFF	VR451	Régler afin que le niveau de sortie, quand ON, soit de $+1\ ^{+0,5}_{-0,1}$ dB lorsque le MPX NR de l'unité principale est hors-circuit.

Modulation de stéréo: Principalé 1 kHz L+R ± 68,25 Hz, Pilote 19 kHz ± 6,75 kHz.

6.1.3 ETC FM

Etape	Nom du réglage	FM SG (1 kHz ± 75 kHz dev.)			Affichage FL, GAMME FI, etc.	Emplacement	Réglage
		Fréquence	Modulation	Niveau			
1	Appareil de mesure en S	99 MHz	MONO	75 dB µ	99 MHz NORMAL	VR205	Régler afin que la tension entre TP4 en GND soit $4{,}9^{+0,05}_{-0,1}$ V.
2	Réglage de niveau de sourdine	99 MHz	MONO	12 dB µ	99 MHz NORMAL	VR204	Régler afin que la sourdine soit relâchée au niveau d'entrée indiqué sur la gauche.

6.2 RÉGLAGES DU SYNTONISEUR AM

- Raccorder comme indiqué à la figure 6–2.

Etape	Nom du réglage	FM SG (400 Hz 30% modulation)			Affichage FL, GAMME FI, etc.	Emplacement	
		Réglage	Fréquence	Modulation		Niveau	
1	Réglage d'alignement * 1	603 kHz	OFF	Niveau bas d'entrée	603 kHz	Bobine ANT du bloc OM	Régler afin que la tension entre TP9 et GND soit maximale.
		1395 kHz	OFF	Niveau bas d'entrée	1395 kHz	TC101	
2	Réglage du transformateur de FI * 1	603 kHz	OFF	Niveau bas d'entrée	603 kHz	F301	
3	Appareil de mesure en S	1008 kHz	ON	74 dB µV/m	1008 kHz	VR301	Régler afin que la tension entre TP9 et GND soit 2,5 ± 0,05V.

* 1: Réglage pour HIX1B seulement.

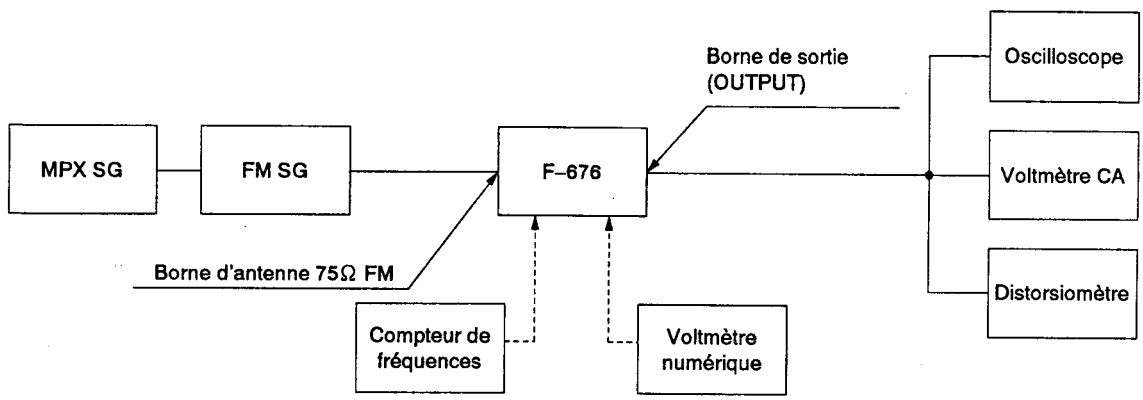


Fig. 6–1 Branchement du syntoniseur FM

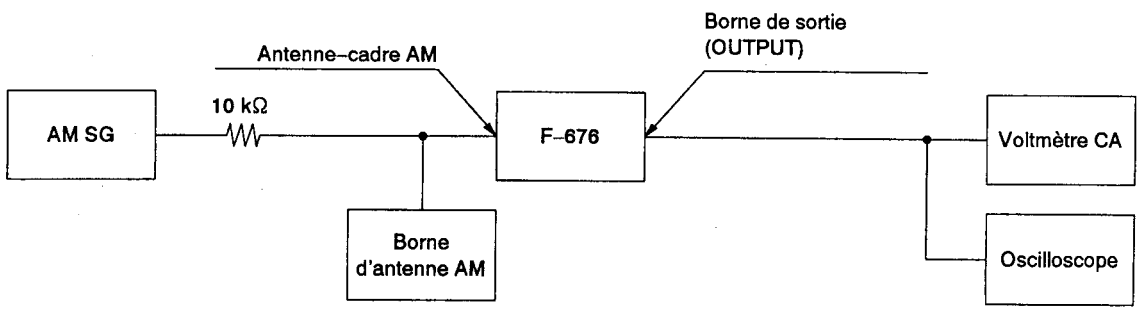


Fig. 6–2 Branchement du syntoniseur FM

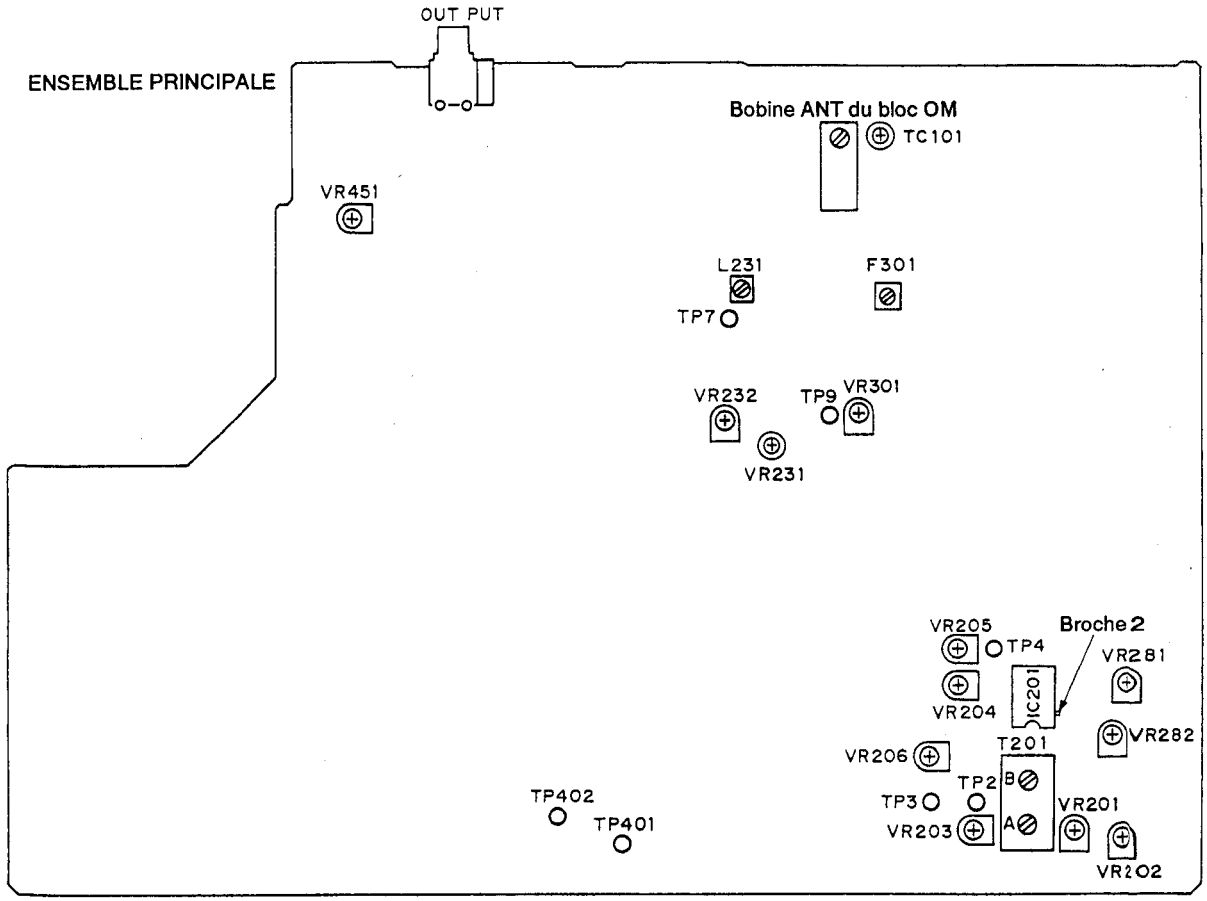


Fig. 6–3 Point de réglage

6. AJUSTES

6.1 AJUSTES DEL SINTONIZADOR DE FM

- Conecte como indica la Fig. 6–1.

6.1.1 FM MONO

Paso	Ajuste	FM SG (1 kHz ± 75 kHz dev.)			Visualización fluorescente, banda de FI, etc.	Posición	Ajuste
		Frecuencia	Modulación	Nivel			
1	Ajuste del medidor T	98 MHz	MONO	60 dB μ	98 MHz NORMAL	T201–B	Ajuste de modo que la tensión entre TP2 y TP3 sea 0 ± 100 mV.
2	Ajuste de la distorsión monofónica	98 MHz	MONO	60 dB μ	98 MHz NORMAL	T201–A VR203	Ajuste de modo que la distorsión sea mínima.
3	Ajuste del subbalance	98 MHz	MONO	60 dB μ	98 MHz NORMAL	VR206	Ajuste de modo que la tensión de CA en IC201 patilla 2 sea mínima.

6.1.2 FM STEREO

Paso	Ajuste	FM SG (1 kHz ± 75 kHz dev.)			Visualización fluorescente, banda de FI, etc.	Posición	Ajuste
		Frecuencia	Modulación	Nivel			
1	Ajuste del VCO	108 MHz	OFF	60 dB μ	108 MHz	VR231	Ajuste de modo que la salida en TP7 sea 38 kHz ± 100 Hz
2	Cancelación del piloto	107 MHz	PILOT ONLY	60 dB μ	107 MHz NORMAL	VR232	Ajuste de modo que la tensión de, terminales de salida, CA sea mínima (MAX LPF: OFF)
3	Ajuste de la distorsión estereofónica (NORMAL)	89 MHz	L–ONLY	60 dB μ	89 MHz NORMAL	VR281	Ajuste de modo que la distorsión sea mínima.
4	Ajuste de la distorsión estereofónica (SUPER ESTRECHA)	89 MHz	L–ONLY	60 dB μ	89 MHz SUPER NARROW	VR282	Ajuste de modo que la distorsión sea mínima.
5	Ajuste de la separación	89 MHz	R–ONLY	60 dB μ	89 MHz NORMAL	VR202	Ajuste de modo que la separación R→L sea máxima.
6			L–ONLY	60 dB μ	89 MHz NORMAL	VR201	Ajuste de modo que la separación L→R sea máxima.
7	Ajuste de la reducción de ruido	89 MHz	L–ONLY	60 dB μ	89 MHz NORMAL MPX NR: ON/OFF	VR451	Ajuste de modo que el nivel de salida, cuando ON, sea $+1^{+0,5}_{-0,1}$ dB cuando el MPX NR de la unidad principal esté en OFF.

Modulación de estéreo: Principal 1 kHz L+R ± 68,25 Hz, Piloto 19 kHz ± 6,75 kHz.

6.1.3 FM ETC

Paso	Ajuste	FM SG (1 kHz ± 75 kHz dev.)			Visualización fluorescente, banda de FI, etc.	Posición	Ajuste
		Frecuencia	Modulación	Nivel			
1	Ajuste del medidor S	99 MHz	MONO	75 dB μ	99 MHz NORMAL	VR205	Ajuste de modo que la tensión entre TP4 y masa sea $4{,}9^{+0,05}_{-0,1}$ V.
2	Ajuste del nivel silenciador	99 MHz	MONO	12 dB μ	99 MHz NORMAL	VR204	Ajuste de modo que el silenciamiento se desconecte en el nivel de entrada mostrado a la izquierda.

6.2 AJUSTES DEL SINTONIZADOR DE AM

• Conecte como indica la Fig. 6–2.

Paso	Ajuste	FM SG (400 Hz 30% modulación)			Visualización fluorescente, banda de FI, etc.	Posición	Ajuste
		Frecuencia	Modulación	Nivel			
1	Ajuste del seguimiento * 1	603 kHz	OFF	Nivel de entrada bajo	603 kHz	Bobina de antena del bloque de MW	Ajuste de modo que la tensión entre TP9 y masa sea màxima.
		1395 kHz	OFF	Nivel de entrada bajo	1395 kHz	TC101	
2	Ajuste del IFT * 1	603 kHz	OFF	Nivel de entrada bajo	603 kHz	F301	
3	Ajuste del medidor S	1008 kHz	ON	74 dB µV/m	1008 kHz	VR301	Ajuste de modo que la tensión entre TP9 y masa sea 2,5 ± 0,05V

* 1: Ajuste sólo para HIX1B.

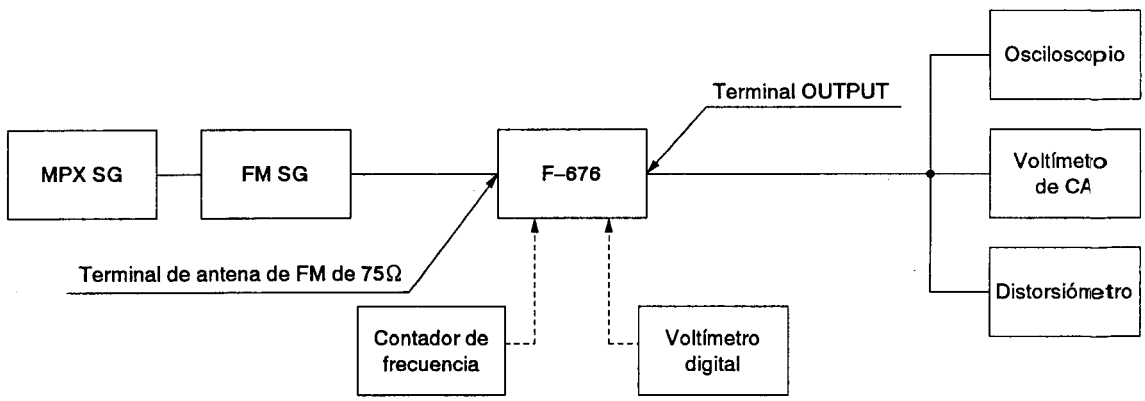


Fig. 6–1 Conexión del sintonizador de FM

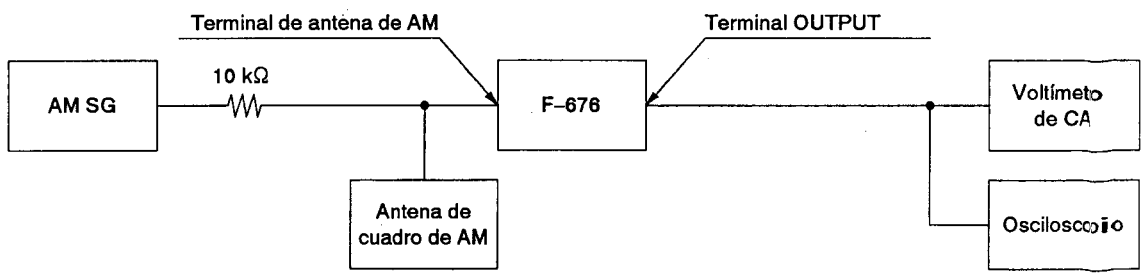


Fig. 6–2 Conexión del sintonizador de AM

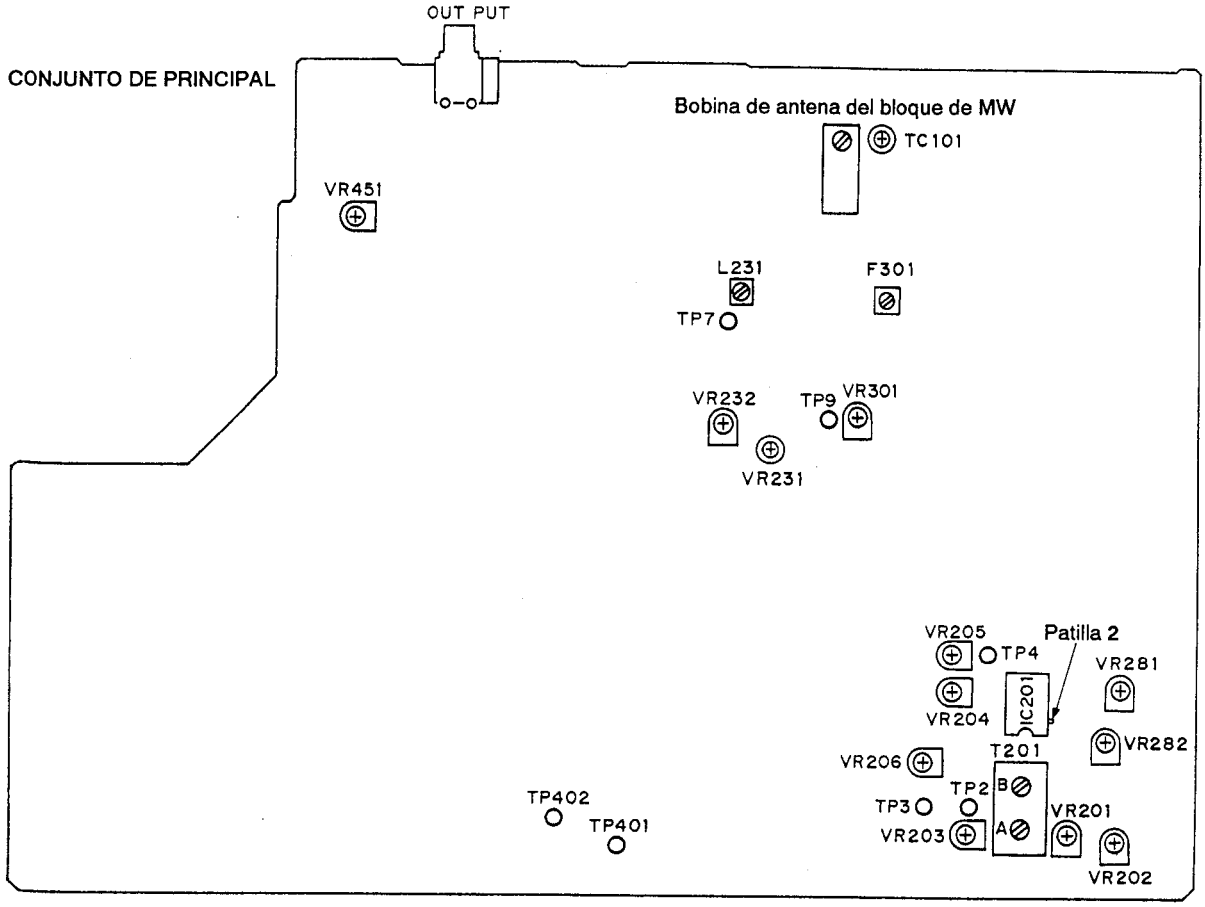


Fig. 6–3 Punto de ajuste

7. FOR F–676/HE, HB AND F–676–S/HEWZ TYPES

CONTRAST OF MISCELLANEOUS PARTS

NOTES:

- Parts without part number cannot be supplied.
- The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
- Parts marked by "⊙" are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.

The F–676/HE, HB and F–676–S/HEWZ types are the same as the F–676/HEWZ type with the exception of the following sections.

Mark	Symbol & Description	Part No.				Remarks
		F–676/ HEWZ type	F–676/ HE type	F–676/ HB type	F–676–S/ HEWZ type	
⊙	TUNER assembly	AWZ3635	AWZ3636	AWZ3636	AWZ3635	
⊙	POWER assembly	AWZ3639	AWZ3640	AWZ3640	AWZ3639	
⚠	AC Power cord	ADG1010	ADG1021	ADG1085	ADG1010	
	Station button (1/13/25–6/18/30)	AAD1751	AAD1751	AAD1751	AAD1753	
	Station button (7/19/31–12/24/36)	AAD1752	AAD1752	AAD1752	AAD1754	
	Panel base	AMB1815	AMB1815	AMB1815	AMB1816	
	Front panel	ANB1449	ANB1449	ANB1449	ANB1450	
	Bonnet	AZN1745	AZN1745	AZN1745	AZN1803	
	Screw	ABA1047	.....	.....	.....	
	Screw	.....	.....	.....	ABA–274	
	Packing case	AHD2053	AHD2053	AHD2053	AHD2054	
	Operating instructions (German)	ARC1263	.....	.....	ARC1263	
	Operating instructions (English/French/Italian/Spanish/ Portuguese/Dutch/Swedish/German)	.....	ARE1190	.....	.....	
	Operating instructions (English)	.....	.....	ARB1313	.....	

⊙ TUNER ASSEMBLY (AWZ3636)

The TUNER assembly (AWZ3636) is the same as the TUNER assembly (AWZ3635) with the exception of the following sections.

Mark	Symbol & Description	Part No.		Remarks
		AWZ3635	AWZ3636	
	D108	1SV156	.....	
	D151–D158	1SS85	1SS252	
	L101	LAU2R2M	.....	
	L102–L104	LAU470K	.....	
	L232	LAU010M	.....	
	L233, L234	LAU100K	.....	
	C102	CKPUYY103M16	.....	
	C110, C112	CKDYX103M25	.....	
	C116	.....	CKDYX103M25	
	C206, C217	CEEA101M16	CEAS101M16	
	C245	CEEA102M16	CEAS102M10	
	C248	CEEA221M16	CEAS221M16	
	C249, C250	CEEA4R7M25	CEAS4R7M50	
	C101, C253	CKDYX103M25	.....	
	C451	CEEA221M16	CEAS221M16	
	C453, C454	CEEANP010M50	CEANP010M50	
	C456, C457	CEEANP4R7M25	CEANP4R7M35	
	C474	CEEA102M16	CEAS102M10	
	R101	RD1/8PM153J	.....	
	R102	RD1/2PM681J	RD1/4PM472J	
	R103	RD1/8PM330J	.....	
	R114	.....	RD1/8PM103J	
	R202, R203	RDR1/4PM103J	RD1/8PM103J	
	R204, R205	RDR1/4PM332J	RD1/8PM332J	
	R237, R238	RDR1/4PM223J	RD1/8PM223J	
	R241, R242	RDR1/4PM333J	RD1/8PM333J	
	R245, R246	RDR1/4PM333J	RD1/4PM333J	
	R247, R248	RDR1/4PM123J	RD1/4PM102J	
	R249, R250	RDR1/4PM821J	RD1/4PM821J	
	R251, R252	RDR1/4PM222J	RD1/4PM152J	
	R281, R282	RDR1/4PM331J	RD1/8PM331J	
	R457, R458	RDR1/4PM821J	RD1/8PM821J	
	R459, R460	RDR1/4PM132J	RD1/8PM132J	
	R461, R462	RDR1/4PM361J	RD1/8PM361J	
	Front End Module assembly	AXQ1004	AXQ1003	

⊙ POWER ASSEMBLY (AWZ3640)

The POWER assembly (AWZ3640) is the same as the POWER assembly (AWZ3639) with the exception of the following sections.

Mark	Symbol & Description	Part No.		Remarks
		AWZ3639	AWZ3640	
⚠	C353	ACG1002	.....	
⚠	L351	ATF–163	.....	

8. SPECIFICATIONS

8.1 FEHLERSUCHE (F-676/HEWZ)

UKW-Tunerteil

Frequenzbereich ..... 87,5 bis 108 MHz
Nutzempfindlichkeit
NORMAL ..... Mono: 12,1 dBf, IHF (1,1 µV/75 Ω)
50 dB Empfindlichkeitsschwelle
NORMAL ..... Mono: 16,2 dBf, IHF (1,8 µV/75 Ω)
Stereo: 36,2 dBf, IHF (17,7 µV/75 Ω)
Empfindlichkeit (DIN)
NORMAL ..... Mono: 0,9 µV/75 Ω
Stereo: 28 µV/75 Ω
Rauschabstand ..... Mono: 83 dB (bei 80 dBf)
Stereo: 78 dB (bei 80 dBf)
Rauschabstand (DIN) ..... Mono: 72 dB
Stereo: 65 dB
Verzerrung (bei 80 dBf)
NORMAL ..... Mono: 0,06 % (1 kHz)
Stereo: 0,2 % (1 kHz)
SUPER NARROW ..... Mono: 0,15 % (1 kHz)
Stereo: 0,8 % (1 kHz)
Ausweichkanal-Trennschärfe
NORMAL ..... 80 dB (400 kHz)
SUPER NARROW ..... 80 dB (300 kHz)
Stereotrennung ..... 55 dB (1 kHz)
40 dB (20 Hz bis 10 kHz)
Frequenzgang ..... $\pm^{0,4}_{1,0}$ dB (20 Hz bis 15 kHz)
Spiegelselektion ..... 50 dB
ZF-Sicherheit ..... 90 dB
AM-Unterdrückung ..... 60 dB
Nebenwellenunterdrückung ..... 70 dB
Hilfsträgerunterdrückung ..... 55 dB
Ansprechschwelle für Geräuschsperre ..... 23,2 dBf (4 µV/75 Ω)
Antenneneingang ..... 75 Ω unsymmetrisch

MW-Tunerteil

Frequenzbereich ..... 531 kHz bis 1.602 kHz (Step 9 kHz)
Empfindlichkeit (IHF, Rahmenantenne) ..... 300 µV/m
Trennschärfe ..... 40 dB
Rauschabstand ..... 50 dB
Spiegelselektion ..... 40 dB
ZF-Sicherheit ..... 50 dB
Antenne ..... Rahmenantenne

Audioteil

Ausgang (Pegel/Impedanz)
UKW (100 % Mod.) ..... 650 mV/0,9 kΩ
MW (30 % Mod.) ..... 150 mV/0,9 kΩ

Sonstiges

Netzanschluß ..... Wechselstrom 220 — 230 V, 50/60 Hz
Leistungsaufnahme ..... 20 W
Abmessungen ..... 420 (B) x 86 (H) x 316 (T) mm
Gewicht (ohne Verpackung) ..... 3,5 kg

Mitgeliefertes Zubehör

T-förmige UKW-Antenne 1
MW-Rahmenantenne 1
Cinch-Anschlußkabel 1
Bedienungsanleitung 1

HINWEIS:
Änderungen der technischen Daten und des Designs zum Zwecke der Verbesserung vorbehalten.

8.2 SPECIFICATIONS

FM Tuner Section

Frequency range ..... 87.5 MHz to 108 MHz
Usable Sensitivity
NORMAL ..... Mono: 12.1 dBf, IHF (1.1 µV/75 Ω)
50 dB Quieting Sensitivity
NORMAL ..... Mono: 16.2 dBf, IHF (1.8 µV/75 Ω)
Stereo: 36.2 dBf, IHF (17.7 µV/75 Ω)
Sensitivity (DIN)
NORMAL ..... Mono: 0.9 µV/75 Ω
Stereo: 28 µV/75 Ω
Signal-to-Noise Ratio ..... Mono: 83 dB (at 80 dBf)
Stereo: 78 dB (at 80 dBf)
Signal-to-Noise Ratio (DIN) ..... Mono: 72 dB
Stereo: 65 dB
Distortion (at 80 dBf)
NORMAL ..... Mono: 0.06 % (1 kHz)
Stereo: 0.2 % (1 kHz)
SUPER NARROW ..... Mono: 0.1 % (1 kHz)
Stereo: 0.8 % (1 kHz)
Alternate Channel Selectivity
NORMAL ..... 80 dB (400 kHz)
SUPER NARROW ..... 80 dB (300 kHz)
Stereo Separation ..... 55 dB (1 kHz)
40 dB (20 Hz to 10 kHz)
Frequency Response ..... $\pm^{0.4}_{1.0}$ dB (20 Hz to 15 kHz)
Image Response Ratio ..... 50 dB
IF Response Ratio ..... 90 dB
AM Suppression Ratio ..... 60 dB
Spurious Response Ratio ..... 70 dB
Subcarrier Product Ratio ..... 55 dB
Muting Threshold ..... 23.2 dBf (4 µV/75 Ω)
Antenna Input ..... 75 Ω unbalanced

AM Tuner Section

Frequency range ..... 531 kHz to 1,602 kHz (Step 9 kHz)
Sensitivity (IHF, Loop antenna) ..... 300 µV/m
Selectivity ..... 40 dB
Signal-to-Noise Ratio ..... 50 dB
Image Response Ratio ..... 40 dB
IF Response Ratio ..... 50 dB
Antenna ..... Loop Antenna

Audio Section

Output (Level/Impedance)
FM (100 % MOD) ..... 650 mV/0.9 kΩ
AM (30 % MOD) ..... 150 mV/0.9 kΩ

Miscellaneous

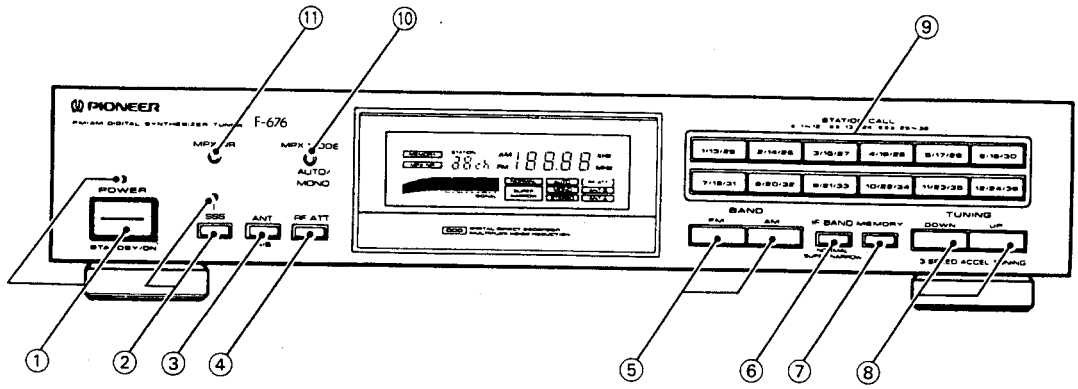
Power requirements ..... a.c. 220 — 230 Volts~, 50/60 Hz
Power Consumption ..... 20 W
Dimensions ..... 420 (W) x 86 (H) x 316 (D) mm
Weight (without package) ..... 3.5 kg

Furnished Parts

FM T-type Antenna 1
AM Loop Antenna 1
Connecting Cord with Pin Plugs 1
Operating Instructions 1

NOTE:
Specifications and design subject to possible modification without notice due to improvements.

9. PANEL FACILITIES



①POWER (STANDBY/ON) switch/indicator

When the power is on, indicator lights.

ON ..... When set to ON position, power is supplied and the unit becomes operational

STANDBY .. When set to STANDBY position, the main power flow is cut and the unit is no longer fully operational. A minute flow of power feeds the unit to maintain operation readiness.

NOTE:

- *The memory will be backed up so long as the power cord is not unplugged.*
- *If the power cord is unplugged, the memory will be retained for several days.*

②SSS button/indicator

When SSS is on, indicator lights. If turned on during reception of AM or when MPX MODE is set to MONO during FM, this will produce a simulated stereo effect which provides rich ambience.
SSS: Spectrum Simulated Stereo.

NOTE:

- *This button's status is preset for each station in station memory.*
- *When the multiplex mode is AUTO, it switches to MONO and operates.*

③ANT A/B button

Selects between two antennas connected to the FM antenna A and B terminals. [ANT A] or [ANT B] indicator lights up.

NOTE:

This button's status is preset for each station in station memory.

④RF ATT button

Set this button to ON when receiving strong FM signals (nearby stations) to reduce sound distortion ([RF ATT] indicator lights).
Normally, this button should be set to OFF.

NOTE:

This button's status is preset for each station in station memory.

⑤BAND selector buttons

FM:
Press to receive FM broadcasts.
AM:
Press to receive AM broadcasts.

⑥IF BAND button

Each time this button is pressed the bandwidth of the IF circuit switches between "normal" and "super narrow" for the FM band.
The selected bandwidth is displayed as follows:
The [NORMAL] or [SUPER NARROW] indicator lights up.
Set to SUPER NARROW in case of interference from other stations.

NOTE:

This button's status is preset for each station in station memory.

⑦MEMORY button

Press to memorize preset stations. The [MEMORY] indicator will remain lit for several seconds. Press the desired STATION CALL buttons to memorize it during this period.
See page 18 for operational details.

⑧TUNING UP/DOWN buttons

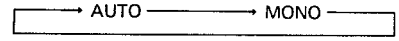
Use these buttons to tune in broadcasting stations. Press UP to receive a station whose frequency is higher than the displayed frequency, and DOWN to tune into a lower frequency station.

⑨STATION CALL buttons

Use these buttons to preset stations and to receive already preset stations.

⑩MPX (multiplex) MODE button

Mode changes as follows each time this button is pressed:



This button does not affect AM reception.
AUTO:
Depending on the broadcast station, STEREO or MONO is automatically selected.
[AUTO] indicator lights up.

NOTE:

When the signal level is too weak for reception, sound output is automatically muted.

MONO:
To receive stereo broadcasts in monaural.
[MONO] indicator lights up.

NOTE:

This button's status is preset for each station in station memory.

⑪MPX NR button

When [MPX NR] is on, indicator lights up.
During reception of stereo broadcasts where the signal is weak, set this to ON if noise is a problem. Noise will be suppressed and sound quality will become clearer.

NOTE:

- *This button's status is preset for each station in station memory.*
- *This does not operate during AM signal reception.*
- *If the multiplex mode is MONO, it switches to AUTO and operates.*